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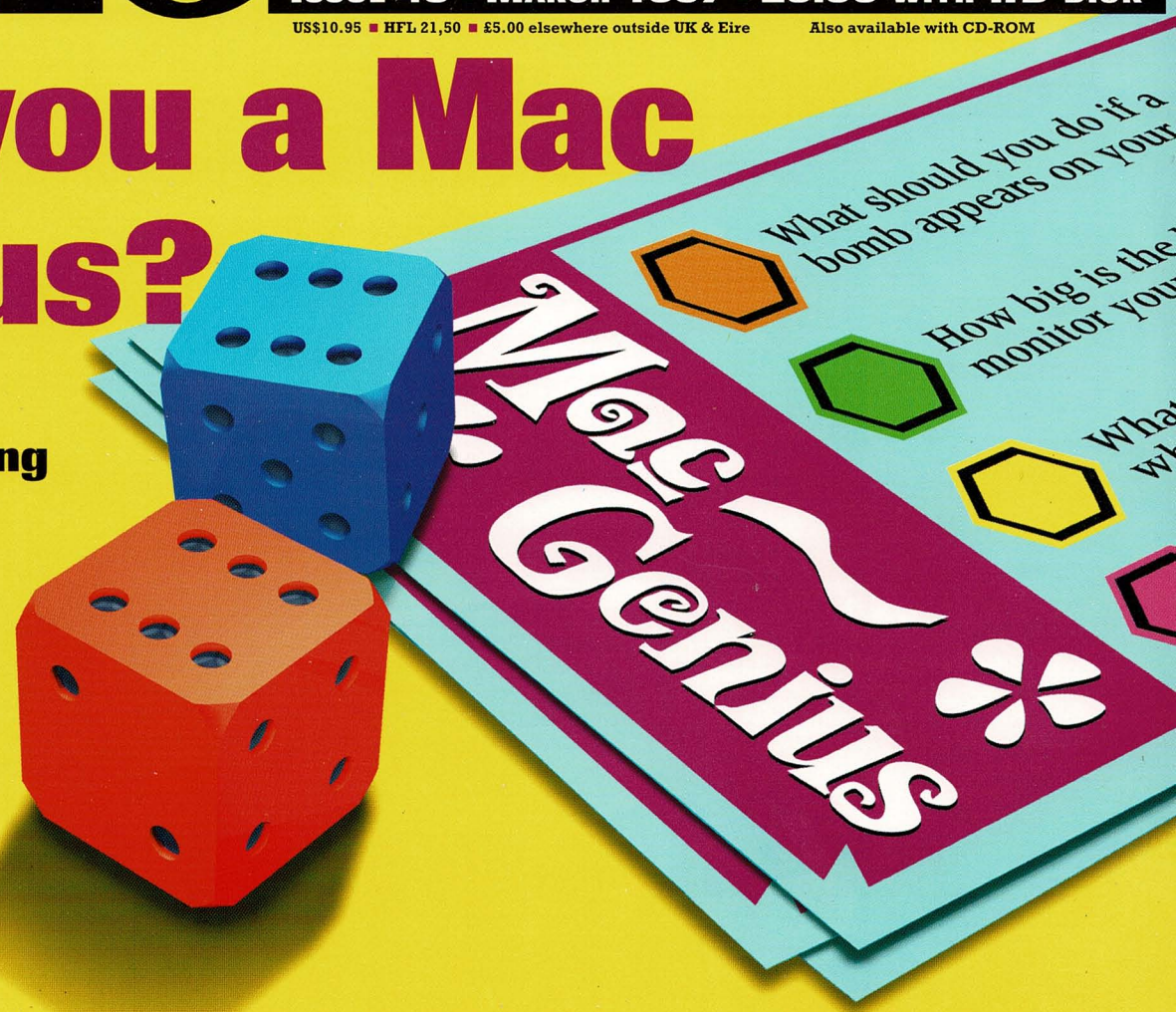

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200	16Mb	2.4Gb	✔28.8	✘	✔8	✘	✔	£1599
200	16Mb	2.4Gb	✔28.8	15" AV M/S	✔8	✘	✔	£1859

APPLE CREATIVE STUDIO MACINTOSH

MHz	RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
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200	24Mb	2.4Gb	✔28.8	15" AV M/S	✔8	✔Vid	✔	£2249

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6320, 12/1200, 8 Speed CD

£829

JUST £6.58 PER WEEK

- 120MHz Power PC 603e
- 12Mb RAM/1.2Gb Hard Drive
- Eight Speed CD • Keyboard
- Disney Plus 3 Software

RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
12Mb	1.2Gb	✘	✘	✔8	✘	✔	£829
12Mb	1.2Gb	✘	14" M/S	✔8	✘	✔	£1058
12Mb	1.2Gb	✘	15" M/S	✔8	✘	✔	£1118
12Mb	1.2Gb	✘	15" AV M/S	✔8	✘	✔	£1149

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FREE 8Mb RAM UPGRADE & SOFTWINDOWS 3.0... Great GH offer available when you buy either a PowerMac 7600/132 or an 8200/120 together with a 17" (or larger) Apple Display and an Apple Extended Keyboard II when purchased before 15th February '97 CALL GH FOR DETAILS!

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160MHz - 603e CPU, 1.2Gb Hard Drive, 16Mb. RAM, 8 Speed CD, System 7.5.3

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WHILE STOCKS LAST!

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FREE MS OFFICE 4.2.1	7600/132	132	16Mb	1.2Gb	✔8	£1349
FREE MS OFFICE 4.2.1	8200/120	120	16Mb	1.2Gb	✔8	£1049
	8500/180	180	16Mb	2Gb	✔8	£1899
	8500/180	180	32Mb	2Gb	✔8	£1952
NEW	8550/200 Including Apple Graphics Card	200	32Mb	2Gb	✔8	£2799
	9500/200	200	0Mb	0Gb	✔8	£2129
	9500/200 Including Apple Graphics Card	200	32Mb	2Gb	✔8	£2799
	9500/2x180 Includes TWO 180MHz CPUs and Apple Graphics Card	2x180	32Mb	2Gb	✔8	£3399

7200/7600/8200/8500/9500s NOW INCLUDE FREE... APPLE INTERNET CONNECTION KIT AND ADOBE PAGEMILL!

POWERBOOK

POWERBOOK RANGE...	
1400cs/117 12/750 DS	£1629
1400cs/117 16/750 CD DS Inc. StyleWriter 2200 Printer	£2149
1400c/117 16/1100 CD AM	£2399
1400c/133 16/1100 CD	£2699
Duo 2300c-100 20/1100 EM/AM	£1549

Check out the BARGAIN 'Dock Plus' Price!

CALL FOR LAST FEW POWERBOOK 5300 MODELS!

1400s SUPPLIED WITH...

Claris Works, Claris Organiser, Route 66, Apple Internet Connection Kit, ARA, GSM Conn. Kit

DS=Dual Scan Display
AM=Active Matrix Display

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POWERBOOK OPTIONS...	
190/5300 8Mb Upgrade	£89
190/5300 16Mb Upgrade	£139
190/5300 Battery (NiMH)	£59
PowerBook Carry Cases	from £24
1400 Six Speed CD ROM	£199
1400 8-Bit Video Out Card	£70
1400 A/C Adaptor	£39
1400 Battery	£69
1400 TDK 28.8 Fax/Modem	£229

MACCELERATE!

Accelerator Boards for Power Macintosh Computers

FANTASTIC NEW ACCELERATORS TO MAKE YOUR MAC FLY! for PowerMac 7500, 7600, 8500 and 9500 Models

SPECIAL LAUNCH OFFER - 150MHz Only...£249

• 180MHz £399 • 200MHz £499

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FOR 630/5200/5260/5300/5320/6200/6300/6320

- PERSONAL COMMS SOLUTION *(models without Ethernet)* FAX, ANSWERPHONE, & INTERNET etc... 14.4 version £109 28.8 version £179
- ETHERNET CARDS *(for models without Personal Comms Solution)*... Thin Co-Ax £59 UTP £59 AUI (requires adaptor) £59
- APPLE VIDEO-OUT CARD - £219
- MPEG FMV VIDEO CD PLAYBACK CARD £175 *(only fits 630 models without a DOS Card)*
- D2 FM RADIO TUNER Only... £59
- APPLE INTERNET CONNECTION KIT - £47

FOR PERFORMA 5400 AND 6400 MODELS ONLY

FOR 5400/6400s

- VIDEO-IN CARD £69
- VIDEO-IN TV TUNER CARD £129
- COMMS SLOT II ETHERNET CARD £75
- 256k LEVEL 2 CACHE CARD £75

POWERMACOPTIONS

Add extra Power to your PowerMac...	
256k Cache DIMM (7500/8500/9500)	£76
512k Cache DIMM (7500/8500/9500)	£97
Apple RISC 604, 120MHz U/G (7500/8500/9500)	£425
Apple RISC 604, 132MHz U/G (7500/8500/9500)	£638
Apple 486, 66MHz DOS Card	£169
Apple 586, 100MHz, 8Mb DOS Card	£489
Apple Pentium 100MHz, 8Mb DOS Card	£610
Apple 3D Accelerator Card & 3D World Bundle	£279

4400 Memory Upgrades

CALL GH FOR NEW EDO DIMM RAM UPGRADES TO FIT THE POWERMAC 4400 RANGE... 8Mb, 16Mb, 32Mb, 64Mb etc.

Creditcharge

If you can't visit us personally, why not ask for an Application Pack for a convenient, flexible GH BUDGET ACCOUNT CARD. No deposit and repayments over convenient periods can be arranged by mail. Once established, you can purchase with your new card and leave existing credit card limits intact.

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GH PRICES... All UK and EC customers please add VAT at the standard rate of 17.5% to all prices. UK overseas Armed Forces Personnel may be exempt VAT - please ask for details.

DELIVERY... We offer prompt shipment with fully insured express delivery options throughout the UK, Europe and Worldwide at a very modest cost. If ordering by mail, please call to confirm delivery charges.

GH WARRANTY... Manufacturers' standard warranties apply or, ask about GH's comprehensive extended options which are always recommended for professional users to minimise costly down time - full details available on request.

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PERSONAL FINANCE - DEFERRED PAYMENT PLAN :FOR INDIVIDUALS VISITING OUR SHOWROOM PAYING A MINIMUM OF 10% DEPOSIT

♥OPTION 1: BALANCES OVER £2000 - PAY NOTHING MORE FOR 6 MONTHS OR, ♥OPTION 2: BALANCES OVER £1200 - PAY NOTHING MORE FOR 4 MONTHS OR, †OPTION 3: ON UNLIMITED BALANCES OVER £500 - CHOOSE OUR 'LOWER COST' FIXED TERM PERSONAL LOAN, 24.9% APR OVER 2 YRS, OR 21.9% APR OVER 3 YRS

♥OPTIONS 1 & 2 - *During the deferred period you can settle IN FULL (without finance charges) or continue your agreement with normal interest arrangements (ie. Direct Debit 27.8% APR, 2.07% Month - Payment Book 32.4% APR, 2.37% Month). And... for the first 6 or 4 months you'll also receive FREE Agreement Life Cover*

†OPTION 3 - *a Low Cost alternative 2 or 3 year agreement, for those who wish to spread the cost of their purchase over a longer period than 4 or 6 months.* Written details available on request. §Subject to status and an £18 arrangement fee. Please contact us prior to visiting for Easy Application requirements.

FINANCE

GH BUSINESS FINANCE FACILITIES...

BUSINESS FINANCE : Weekly rates shown exclude VAT and are based on a fixed cost 3 Year Apple Commercial Credit Lease payable quarterly after an initial deposit payment. Available to all businesses (including recently established) making a minimum total purchase from GH of £750 - subject to status. FULL Details available on request.

Manufacturers' specifications and GH prices are correct at time of going to press; however, they may fluctuate and we therefore reserve the right to amend them - please confirm prices before ordering. This advertisement is an invitation to treat, not an offer to sell. Goods are not supplied on a trial basis. All transactions are subject to Harwood's Terms and Conditions of Sale, a copy of which is available on request. E.&O.E.

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GH Budget 14" Multisync Monitor (.28)	£189
GH 15" Multisync Monitor (.28)	£239
Apple 15" Multiscan (.28)	£289
Apple 15" AV Multiscan (.28)	£359
Apple 17" 1705 TCO MultiScan (.26)	£449
Apple 17" 1710 TCO Trinitron MultiScan (.26)	£549
Apple 17" 1710AV TCO Trinitron MultiScan (.26)	£599
Apple 20" Trinitron MultiScan II (.26)	£1199
NEW Mitsubishi 17" Diamondtron TXV Multisync (.25)	£425
Mitsubishi 17" Diamondtron TXM Multisync (.25)	£499
Mitsubishi 21" Diamondtron TX Multisync (.30)	£999
Mitsubishi 21" Diamondtron TXM Multisync (.28)	£1049
Sony 15" Trinitron Multisync (.26)	£CALL
Sony 15" Trinitron Multisync (.26)	£CALL
Sony 17" Trinitron Multisync (.26)	£CALL
Sony 17" Trinitron Multisync (.26)	£CALL
Sony 20" Trinitron Multisync (.26)	£CALL
Formac 17" Diamondtron F17 FST Multisync (.26)	£399
Formac 17" ProNitron F17 400 Multisync (.26)	£499

WHILE STOCKS LAST! PRICE CRASH! Ask about NEW Sony Monitor Ranges!

GH Prices INCLUDE Adaptors for non Apple Monitors FREE!

Ask about additional VRAM (Video RAM)...
To give you even higher resolutions, more colours etc.

VIDEO/GRAPHICS CARDS

I.M.S. Twin Turbo 2Mb Card	£249
I.M.S. Twin Turbo 8Mb Card	£649
Formac ProVision 2/40 (4Mb, 64 Bit, Half Length)	£219
Formac ProVision 4/60 (4Mb, 128 Bit, Half Length)	£329
Miro Motion DC20 Video Editing Card (Adobe Premiere 4.2)	£699

PRINTERS

WHILE STOCKS LAST!

LASERS

Apple Personal Laser 300 - 300dpi Mono	£415
Apple Laser 4/600PS - 600 dpi Mono	£599
Apple LaserWriter 12/640PS	£1099
Ask about 'Trade In' Offers on 12/640PS!	
Apple Laser 16/600 - 600 dpi Mono	£1399
Apple LaserWriter 12/660PS Colour	£4499
HP LaserJet 6MP - 600 dpi Mono, 3Mb RAM, 8ppm With both Parallel and Local Talk Connections	£649

INKJETS

Apple StyleWriter 1500 Colour 720 x 360dpi	£219
Apple StyleWriter 2200 Colour 720 x 360dpi	£269
Apple StyleWriter 2500 Colour 720 x 360dpi	£289
Apple StyleWriter EtherTalk Kit	£145
Canon BJC4550 Colour - A3 Mac or Amiga	£309
Epson Stylus Colour 500 720 x 720dpi	£209
Now Includes Epson 'T' Shirt Printing Factory Whilst Stocks Last!	
Epson Stylus Pro Colour - A4 720 x 720dpi	£314
Epson Stylus Pro XL+ Colour - A3 720 x 720dpi	£829
Epson Stylus Pro POSTSCRIPT RIP	£175
HP 660C DeskWriter Colour 600 x 300dpi	£209
HP 870Cxi DeskWriter Colour 600 x 600dpi	£329

INC. KAI's GOO!

PowerPrint Use parallel printers with Macs	£79
StyleScript Adobe PS RIP for Apple Colour SWs	£79

PRINTER CONSUMABLES

StyleWriter... I/II Port/1200/1500...	Black Cartridge	£14
StyleWriter 1500	Colour Cartridge	£23
StyleWriter 2500	Photograde Kit	£47
	Premier Plus Paper	£29
	Photograde Ink Cartridge	£25
StyleWriter 2400/2500	Black Cartridge	£26
	Colour Cartridge	£33
	Black Ink Tank	£7
	Colour Tank	£13
Colour StyleWriter Pro	Black Hi-Capacity	£10
	C, M, or Y Cartridge (ea.)	£10ea.
	CMYK - 4 Colour Set Cart.	£38
Epson Stylus 500	Black Cartridge	£15
	Colour Cartridge	£24
Epson Stylus II	Black Cartridge	£14
	Colour Cartridge	£20
Epson Stylus Pro/XL/XL+	Black Cartridge	£11
Epson Stylus Pro/XL	Colour Cartridge	£24
Epson Stylus XL+	Colour Cartridge	£29
Epson Stylus A4 Paper	360dpi Paper, 100 Sheets	£12
	720dpi Paper, 100 Sheets	£16
	Transfer Paper, 10 Sheets	£13
Epson Index Cards	50 Cards, A6 Size	£8
ALL HP PRINTER CONSUMABLES		£CALL
Genuine Apple Toner Cartridges...		
For Apple LaserWriter 300, 320, 4/600		£45
For Apple LaserWriter LC, SC, NTR		£55
For Apple LaserWriter Select 360		£69
For Apple LaserWriter 16/600		£85
For Apple LaserWriter 12/640		£89
Genuine Apple Colour LaserWriter Consumables...		
Colour LaserWriter Fuser Oil		£29
Colour LaserWriter Black Toner		£77
Colour LaserWriter Colour Toner - C, M, or Y (ea.)		£89ea.

SCANNERS

Apple Color One 600-27 Scanner	£349
Apple Color One 1200-30 Scanner	£549

UMAX

Model	Photoshop	Trans Adap	Price
VISTA S6e	✘	✘	£199
VISTA S6e	LE	✘	£219
VISTA S6e	FULL	✔	£649
VISTA S12	✘	✘	£399
VISTA S12	LE	✘	£419
VISTA S12	FULL	✘	£519
VISTA S12	FULL	✔	£839
TextBridge bought with any Umax scanner			£39

NEW

MICROTEK

Model	Software	Trans Adap	Price
ScanMaker E3	Omnipage	✘	£219
ScanMaker E3	Photoshop LE/Omnipage	✘	£249
ScanMaker E3	Full Photoshop/Omnipage	✘	£349
ScanMaker E6	Omnipage	✘	£339
ScanMaker E6	Photoshop LE/Omnipage	✘	£369
ScanMaker E6	Full Photoshop/Omnipage	✘	£469

NEW

EPSON

Model	Photoshop	TextBridge	Price
GT 5000	LE	✔	£279
GT 8500	LE	✔	£449
GT 8500	FULL	✘	£549
GT 9500	LE	✔	£549
GT 9500	FULL	✘	£659
Epson Transparency Adaptor (except 9500)			£399

PAPERPORT

Visioneer Paperport VX (inc. WordScan OCR S/W)	£239
VOUCHER FOR... FREE SCSI ADAPTOR WITH ALL VISIONEER PAPERPORT VX MODELS, WORTH... £49.00	
SCSI Adaptor for Paperport VX	£49
4 Port Juggler for Paperport/Modems	£89

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CAMERAS

Casio QV-10 Digital - 320x240	£309
Casio QV-10 Digital - 640x480	£429
Apple QuickTake 150 inc. Mac/PC Kit	£399
QuickTake 100 to 150 Upgrade Lens	£13
Kodak DC20 Digital 1Mb inc. Kai's GOO!	£159
Kodak DC25 Dig. 2Mb, PCMCIA, LCD, Kai's GOO	£319
Kodak DC40 Digital 4Mb, Flash, 99 Images	£399
Kodak DC50 Digital 1Mb, PCMCIA, 3 x Zoom	£579
Connectix QuickCam	£79
Connectix QuickCam Colour	£149

INC. KAI's GOO!

STORAGE

D2, Quantum, 2.1Gb Internal Hard Drive	£299
D2, Quantum, 4.0Gb Internal HD (Atlas AV)	£775
D2, Quantum, 1.2Gb External Hard Drive	£279
D2, Quantum, 2.1Gb External Hard Drive	£339
EZ135 Cartridge	£14
EZ230 Drive - Including Cartridge & Cable	£199
EZ230 Cartridge	£20
EZ230 Cartridge, 6 PACK	£108
IOMEGA 100Mb ZIP Drive - Including Cartridge & Cable	£125
ZIP Cartridge - 100Mb	£11
ZIP Cartridges - 100Mb, 6 PACK	£54
D2 JAZ Drive Including Cartridge & Cable	£299
D2 JAZ Drive Including 3 Cartridges & Cable	£469
IOMEGA JAZ Drive Including Cartridge & Cable	£339
JAZ Cartridge - 1Gb	£65
JAZ Cartridges - 1Gb, 3 PACK	£189
Nomai 540Mb 3.5" Syquest - Including Cartridge & Cable	£249
D2 200Mb Syquest Drive - Including Cartridge & Cable	£349
Syquest Cartridge - 44Mb	£28
Syquest Cartridge - 88Mb	£30
Syquest Cartridge - 200Mb	£45
Syquest Cartridge - 270Mb	£34
D2 230Mb Optical Drive - Including Cartridge	£399
Optical Disk - 230Mb	£20
Pinnacle 2.6Gb Optical Drive Including Cartridge & Cable	£849
SONY CD WRITER Double Speed Write, Six Speed Read. Including Toast or Gear Software	£399
YAMAHA CD WRITER Quad Speed Write, Quad Speed Read. Including Toast or Gear Software	£579
PINNACLE RCD 5040 CD WRITER Including Software	£649

WHILE STOCKS LAST! PRICE CRASH! PRICE CRASH!

CD ROM DRIVES

NEW D2 CD 1200e Eight Speed inc. Cables*	£189
D2 CD 1800e Twelve Speed inc. Cables*	£199
Micronet CD1200e Eight Speed Inc. 5 Titles	£209
NEW Micronet CD2400e Sixteen Speed Inc. 5 Titles	£239

KEYBOARDS

Third Party Design Keyboard	£40
Apple Design Keyboard	£59
Apple Extended Keyboard	£89
Apple Adjustable Keyboard	£139

WACOM TABLETS

Artpad II with Dabbler (New Stylus)... £119
Ultra Pad... A5 - £249, A4 - £349, A3 - £549

COMMS

Apple 28.8 GeoPort II FOR POWERMACS	£109
Apple Personal COMMs Solution - 28.8 (For 630/5200/5260/5300/5320/6200/6300/6320, see 'Performa Options' below left)	£179
NEW Motorola 28.8 3400 Pro V34	£99
Motorola 33.6 PCMCIA for Apple/PC	£135
Global Village TelePort Gold II 14.4 BABT	£49
NEW Global Village TelePort Internet 9 Pin Serial 33.6 BABT	£129
Global Village TelePort Internet 8 Pin Serial 33.6	£129
Global Village PowerPort Gold PCMCIA 14.4 BABT	£189
Global Village PowerPort Platinum PCMCIA 28.8 BABT	£239
US Robotics 33.6 Sportster Voice Mac	£149
US Robotics 28.8 Mac XJACK PCMCIA	£149
FAX Friend Auto switch between FAX/Voice calls	£49
VocalTec Internet Voice Phone for Macs	£39

FREE INTERNET access software via Compuserve with ALL Modems!

RAM UPGRADES

SIMMs... 4Mb £20, 8Mb £32, 16Mb £69, 32Mb £129, 64Mb £289
DIMMs... 4Mb £21, 8Mb £32, 16Mb £63, 32Mb £129, 64Mb £249
Memory Prices Fluctuate Daily, Call GH FIRST!!!

SOFTWARE

Corel Draw Suite (Corel Draw + Word Perfect)	£279	M.Y.O.B. Accounts	£149
		MacMoney	£62
Corel Draw Suite UPGRADE	£99	Complete After Dark CD	£34
Quark Xpress 3.3	£649	Apple PC Exchange	£39
Adobe Illustrator 6	£279	Apple System 7.5.5 - CD/3.5"	£59
Adobe Photoshop 4.0	£399	Norton Utilities 3.2	£74
Adobe Collection	£549	SoftWindows 3.0 - CD/3.5"	£209
KAI's Power Tools 3.0	£95	SoftWindows '95 - CD	£249
KPT Vector Effects	£95	Conflict Catcher	£52
KPT Power Photos 1, 2 or 3	£95ea.	VIREX - Anti Virus	£59
KPT Convolver	£95	SAM	£54
KPT Bryce II	£139	SAM (Inc. Updates for 1Year)	£109
KAI's GOO	£42	RAM Doubler 2.0	£38
Freehand 5.5	£319	Speed Doubler	£38
Claris Works 4	£94	RAM & Speed Doubler Pack	£54
Claris Works to MS Office u/g	£179	Stuffit Deluxe 4.0	£66
Claris E'M@iler	£42	Hypercard 2.3.1	£94
Claris Draw	£95	Let's Keep It Simple - S/Sheet	£98
Claris Impact	£95	Creative Writer & Fine Artist	£39
Filemaker Pro 3	£159	Encarta '97	£39
Claris Home Page	£69	Groliers Ency. Science Fiction	£30
Microsoft Office 4.2	£359	Actua Soccer	£25
Microsoft Word 6.0	£245	Please call and ask for any	£CALL
Microsoft Excel 5.0	£245	Mac software not listed!	

NEW

DR. SOLOMON's ANTI VIRUS TOOLKIT £CALL!

MAC ACCESSORIES

Apple Design Speakers II	£49
Sony PC21 Speakers	£29
Apple Mouse II	£28
Kensington Turbo Mouse V5	£68
Kensington Thinking Mouse	£51
MacAlly Mouse	£17
MacAlly Joystick	£32
MacAlly Game Pad	£22
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		CIS Retriever	£93
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TapWorks	£55	MORE NEWTON	
PocketCall	£71	ACCESSORIES	
Accountable	£48	AND NEWTON	
Leverage 2.0	£88	SOFTWARE!	
Action Names/Agenda 3.0	£35		

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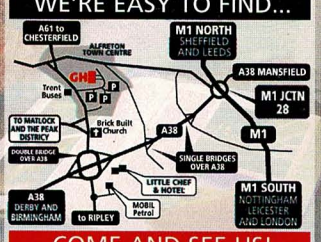

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MACFORMAT
ISSUE 48 ■ MARCH 1997

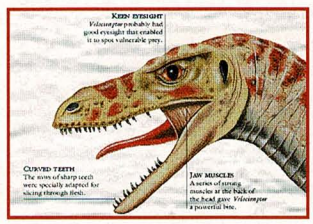
The Finder

Reviews A-Z

Your easy index to products reviewed in this issue

Caesar II	104
Close Combat	106
PhotoMate	81
Corel WordPerfect 3.51	84
DataDock Express	67
Dinosaur Hunter	98
Duck City	97
Electronique d2 MCD	65
Electronique d2 640Mb MO	66
Electronique d2 650Mb HS MO	67
Iomega Zip Drive	64
Mah Jong Parlour	114
MessagePad 130	70
MessagePad 2000	70
Mode	110
Musee d'Orsay	90
My First Incredible, Amazing Dictionary	99
Nomai 540	65
Nightingale 3.0	86
Police Quest SWAT	113
QuarkImmedia	76
Scrutiny in the Great Round	91
Shakespeare	92
SyQuest EZ Flyer	64
The Crucible	94
The Double Double	96
Wizardry Gold	108
Xyratex MaxIt	66

Newton technology comes of age with the MessagePad 2000 handheld computer: page 68.



Go back to the age of dinosaurs with *Dinosaur Hunter* on page 98.

Test your tactics with Microsoft's first Mac game in years: page 106.

Buyer's Guide

The Chooser 121

The authoritative buyer's guide, with advice to help you choose wisely, hot product news and a reappraisal of DTP stalwart *QuarkXPress*.

Free Reader Ads 142

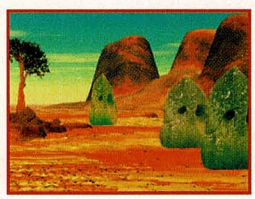
Pick up the best bargains in our Mac marketplace. Software, hardware and everything in-between!

Win! Win! Win!

Win a 540 MCD removable drive 146

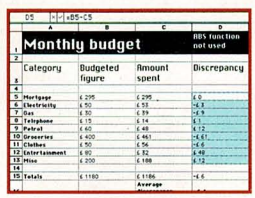
Electronique d2's 540 MCD could be the answer to your data storage prayers, and there's three to be won in our competition, plus runner-up prizes of a Radio d2, an 11-channel FM radio you can integrate with your Mac.

How to...



Use xRes 40

Last issue we brought you the *complete* graphics program *xRes 2.0 SE* on our bonus Cover CD. Now, start mastering the powerful features at your command...



Use spreadsheets 42

Your spreadsheet isn't just for doing calculations – it can make "decisions" for you and even warn you when you overspend. Here's how to make it work for you.

Use QuickTime 56

ON THE CD

Did you know you had a complete movie studio in your Mac? We show you how to get the best from *MoviePlayer*, which is included with QuickTime 2.5, and even use it as a simple video editor!

Regulars

Welcome to MACFORMAT 7

Everything you wanted to know about MACFORMAT but were afraid to ask; plus favourite Mac trivia.

Web highlights 14

If you're hungry for information about Apple's plans for the NeXT technology it bought recently, we've got the Web links with the answers.

News 16

The biggest news stories from the Expo at San Francisco – did our News Editor get a tan? How *was* the Alcatraz tour? Oh, and there's something about Apple's brand-new operating system for the Mac.

Apple Talk: letters 26

Your chance to speak out about the Mac issues that really matter, plus Silly Things Your Mac Says.

MacAnswers 50

Mac problems solved this month include startup and memory difficulties; plus speedy CD-ROMs.

Subscribe to MACFORMAT 115

Make sure you never miss another issue of MACFORMAT!

Contacts 141

How to get in touch with us.

Classic System Crew 141

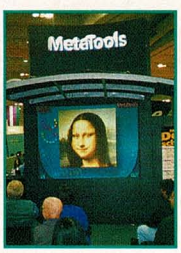
Interact with the Crew, as they test our latest hardware.

Back Issues 144

If you did miss an issue, here's how to complete the set!

Next Issue 145

Be patient: there's just four weeks to wait for the next one.



Our News Ed jetted over to 'Frisco while the rest of MACFORMAT slaved away in the office. Take a look at his holiday snaps on page 16.

Are you a Mac genius?

Mac quiz page 32

Do you understand how your Mac works – and do you know what to do if it goes wrong? Find out just how much you *really* know about your Mac by taking our fun quiz!

Personal space

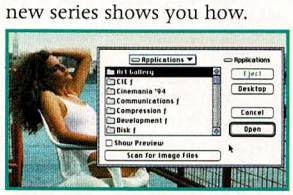
Removable storage page 60

When you need extra data storage space, or perhaps you've got some large files you need to transfer safely, removable drives are the most flexible option. We assess the latest removable drives and ask which ones are best for your needs in our group test.

AppleScript

page 44

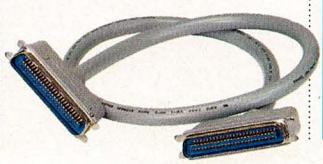
ON THE CD If you find yourself performing the same routine tasks again and again, take charge and automate your Mac with AppleScript – our new series shows you how.



Basics: Storage

page 48

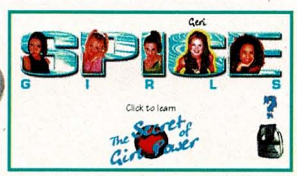
You know that your Mac stores data on its hard drive, but how does it work and how can you make better use of it? We explain the storage basics and show you how to avoid the most common pitfalls.



QuarkImmedia

page 78

ON THE CD Read our review (page 76), then try the new multimedia creator for yourself with our step-by-step project – usable software and sample files are on the Cover CD!



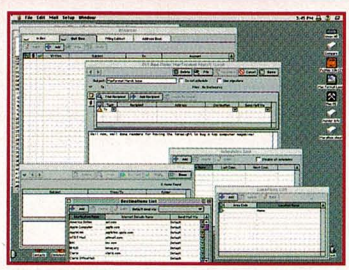
MACFORMAT Cover Discs

MACFORMAT is available in your choice of a CD-ROM or a high-density floppy disk edition every issue:

ON THE CD This logo in the mag indicates programs on the CD.

Your Cover CD-ROM 8

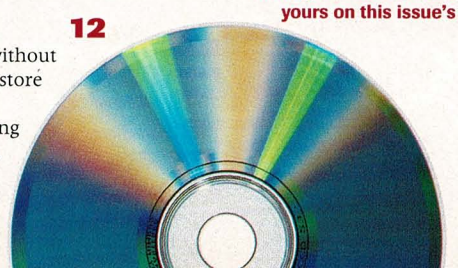
We've got a massive 620 megabytes of choice material this issue. Sort your e-mail with the complete commercial version of *Claris Emailer 1.1* and improve your media skills with our demos of *QuarkImmedia* and *Nightingale 3.0*. Explore the extremes of culture with demos of *Jungle Activated* and *Musée D'Orsay*, then test your skill against *Close Combat* and *Caesar II*. And there's 100Mb of top shareware from the Net!



***Claris Emailer* is a versatile e-mail manager – and the full program is yours on this issue's Cover CD!**

Your Cover Disk 12

You'll wonder how you managed without *CopyPaste 3.2*, which enables you to store several itmes of data to paste into documents. Plus: play the challenging *NS-Shaft* and try 12 other programs.



Reviews

Our reviews policy 59
Why you can trust a MACFORMAT review.

Hardware

Group test: Removable data storage 60
Need some space? A removable drive could be a breath of fresh air. We explain the technology and test eight of the latest removable drives.

Apple MessagePad 2000 & 130 68
Fancy a Personal Digital Assistant – an electronic FiloFax™ that can even read your handwriting? We test the new MessagePad 2000, the latest generation of Newton, and its cheaper sibling.

Productivity

ON THE CD **QuarkImmedia** 76
The leading desktop publishing package gains the ability to turn pages into interactive multimedia with this new XTension. A designer and *Director* expert puts it to the test...

Connectix PhotoMate 81
Retouch your digital photos, and even compile a slideshow or a searchable "album", with this new home picture-manipulation package...

Corel WordPerfect 3.51 84
Has Corel managed to put the *Perfect* back into word processing with this revamped package?

ON THE CD **Music: Nightingale 3.0** 86
A fast, intuitive, even Internet-ready scorewriting program that can even put the lyrics under the right notes for you.

Leisure

ON THE CD **Multimedia** 90
From art and education-oriented titles to children's CDs... and some football too.

Musée d'Orsay 90
Scrutiny in the Great Round 91
BBC Shakespeare: Macbeth, Romeo and Juliet, A Midsummer Night's Dream 92
The Crucible 94
The Double Double 96
Duck City 97
Dinosaur Hunter 98
My First Incredible, Amazing Dictionary Activity Pack 99

ON THE CD **Games** 104
Strategy games of different types dominate this month's new releases...

Caesar II 104
Close Combat 106
Wizardry Gold 108
Mode 110
Police Quest SWAT 113
Mah Jong Parlour 114

ON THE CD **Shareware Central** 116
The latest low-cost software fondly plucked from the Internet.

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Performa
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PowerBook
100, 140, 145, 145B, 150, 170, 160, 165, 180, 165C, 180C, 190, 190CS, 520, 520c, 540, 540C, 5300 Series, Duo Series, 1400 Series

Workgroup Server
60, 80, 95, 6150, 8150, 9150

PowerMac
4400, 6100, 6100AV, 7100, 7100AV, 8100, 8100AV, 7200, 7500, 7600, 8200, 8500, 9500

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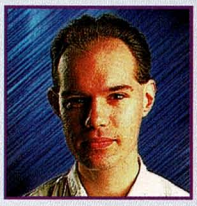
Welcome to MACFORMAT

Everything you wanted to know about MACFORMAT, plus our favourite snippets of Mac trivia...

About our writers



Richard Hill

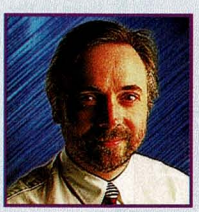
This month our globe-trotting Deputy Editor had his News Editor hat on at San Francisco's Expo, seeing all the most significant new Mac developments for himself. But the moment he returned we asked him, in keeping with this issue's quiz feature, for his favourite bit of Mac trivia. He replied: "I don't know any Mac trivia, I'm afraid – I only have room for important stuff." That's why we call him MACFORMAT's *Mastermind.*

Lindsay Bruce

Our Technical Writer's piece of trivia: "On 24 January 1984, Apple co-founder Steve Jobs unveiled the first Mac – the 128 – to the Apple shareholders' meeting. Using its synthesized speech capabilities, the Mac introduced itself. It got a standing ovation. The interesting thing is, it wasn't a standard 128, but beefed up to 512K of RAM so it could perform its demo that day." Around here, we call Lindsay our *Trivial Pursuit.*

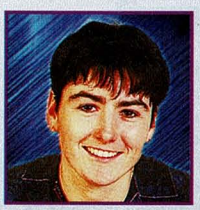
Derek Smith

Our company technical support expert took great delight in telling us his interesting snippet: "When a PowerMac 6100 develops a serious hardware fault that prevents it from booting up, it makes the sound of a car crashing. Obviously someone at Apple thought this would cheer up the owner of a dead Mac. Oh dear." Around most of the company, Derek is fondly known as MACFORMAT's *Jeopardy.*



Rod Lawton

Our "productivity software" specialist runs his own business using Macs, and his snippet is this: "The Mac Classic is still a very powerful machine. Mine will keep the front of the car up while I do the brake pads." He nominated his own game: MACFORMAT's *Connect-Four.* (But then he added, "Shouldn't Rich be *'Monopoly'...?" Jeux Sans Frontiéres,* more like.)



Tess Moran

Our acting Disc Editor dipped into the books when we asked her for a bit of trivia. "Steve Jobs's middle name is Paul," she said, "and the enhanced Mac used in that demo Lindsay mentioned was released to the general public some six months later as the Mac 512 – the Fat Mac." Tess is off to work on one of our company's bike mags soon, so her game has to be *It's a Knockout.*

Ian Waugh

Our music specialist informs us that the Mac with the shortest "lifespan" was the Centris 660AV, "which was introduced in July '93 and discontinued only four months later," he reports. "Now, at least, if you buy a brand new Mac it won't be obsolete for at least *six* months." We affectionately think of Ian as MACFORMAT's *Name That Tune.* Or perhaps *Face the Music...*

Alex Summersby
Editor

Welcome again to MACFORMAT, Britain's best-selling Mac (and Mac-compatible!) magazine.

Our cover feature this issue gives you a chance to have a bit of fun and at the same time find out just how much you really know about your Mac. Yet, as our comprehensive report of the news from the recent Macworld Expo in San Francisco demonstrates, things are changing so quickly in the Mac world that whatever you thought you knew, some new development will make obsolete next month.

Breathtaking new ideas are finding their way into actual products too, as this issue's reviews prove. The latest removable storage devices make innovative technologies much more affordable than ever; *QuarkImmedia,* which promises to electrify the world of multimedia, adds a whole new dimension to a DTP package that some commentators were complaining had run out of steam (how wrong they were!); Apple's sometimes-derided Newton MessagePads seem to have come of age. Even something as simple as Apple's *MoviePlayer* turns out to be bursting with potential, once you learn how to get the best from it (our QuickTime series will show you how this issue).

The biggest Mac show of the year so far may have been over in the US – and most of us may not have had the opportunity to get there! – but right now, right on your desktop is where the action is!

About MACFORMAT

MACFORMAT is for you, the person who actually works at a Macintosh keyboard. Every issue we bring you:

- **Tips, techniques and tutorials** covering the range of Mac applications, from graphics, spreadsheets and databases to music, multimedia and games.
- **Features** about exciting Mac developments and novel uses, accompanied by software on our Cover CD-ROM and floppy disk whenever possible, so you can discover what your machine can do and try things you mightn't have tried before.
- All the latest Mac-related **news,** plus all you want to know about the wider issues, the people behind the headlines and the stories behind the stories.
- Authoritative, independent **reviews** of interesting and affordable products, with clear buying recommendations.
- **Cover Disks and CD-ROMs** with demos so you can try software for yourself before you buy, useful utilities (specially chosen to complement features in the magazine), selected shareware programs, games, readers' contributions and much more.

Whether you're a veteran or a novice, MACFORMAT will help you get more out of your Macintosh, whatever you use it for.

A word about prices...

We try to ensure that all prices quoted in editorial pages in MACFORMAT are accurate at the time of going to press, and they all *include* UK Value Added Tax at 17.5%. However, this may not necessarily be the case with prices appearing in advertisements, so we recommend that you always contact advertisers before ordering to confirm prices and availability.

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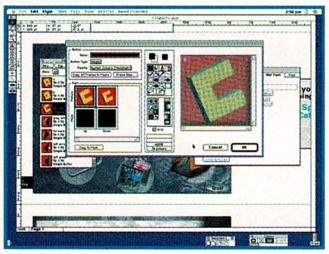
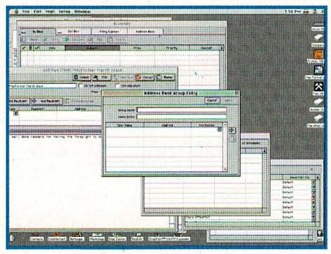

QuarkImmedia


Claris Emailer

Jungle Activated!

Caesar II

Your CD-ROM

Cuddly Dinosaurs. Cool Dentists. Creamy Desserts. There's a never-ending stream of things that CD can stand for. This month, though, Tess Moran says it stands for Creative Delights...

Getting started

Welcome to the MACFORMAT 48 Cover CD. Here are some tips:

- **Some of the demos on the Cover CD require installation on your hard disk – they won't run direct from the CD. Many of these programs use an installer: once you've double-clicked on it, just follow the on-screen instructions and you should be fine. Even if there's no installer, it often helps to copy demos to your hard disk – at the very least they should run faster!**

- **The icons we use on the CD folders help to give it a friendly atmosphere, but they do slow it down. Install *CDIconKiller,* which is in the Resources folder on the CD, if you want to speed things up.**

- **If you have problems quitting any of the rolling demos on the CD, just press [command] Q and you should go back to the Finder. If this doesn't work, hit [command] [option] [escape] to Force Quit.**

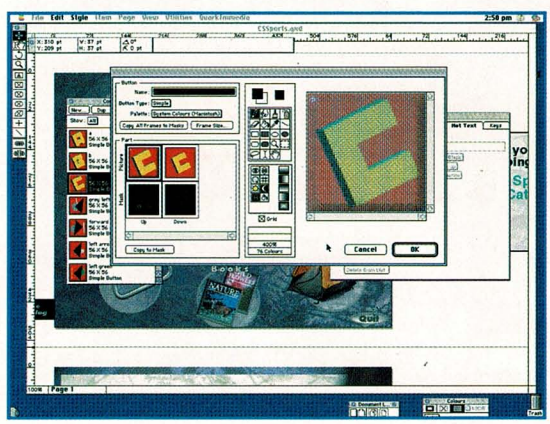
- **It couldn't be easier to install System Extensions and Control Panels – just drag them over your closed System Folder and your Mac puts them in the right place for you. Then all you need to do is Restart.**

- **Look for this icon throughout the issue – it will point you towards the CD contents connected with the feature or review you're reading.**

ON THE CD

QuarkImmedia

What is it? Save-disabled multimedia DTP demo
Where you'll find it: Demos folder
Mac: 68030
PowerMac: Any
Requires: System 7.1 for 68K demo, 7.1.2 for PPC demo, 4Mb RAM, Apple Sound Manager 3.1, QuickTime 2.1 (both supplied within the Demos folder), Adobe Type Manager.

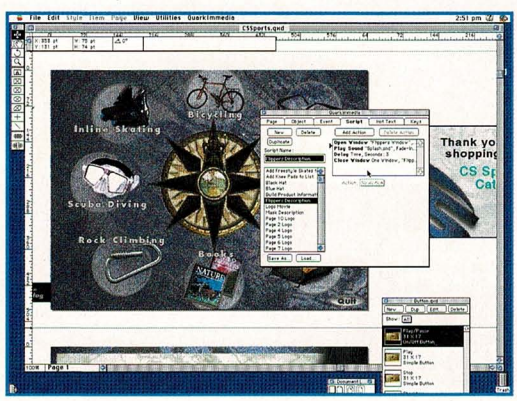

Brighten up those boring old pages of text with sound and video and high-tech links to the Internet!

This is your chance to sample the Mac's best DTP-package-turned-multimedia program. In this demo version you get to create your own projects using the sample clip-media supplied on the CD, which contains animations, button libraries, cursors, movies and sounds to play with.

To get a glimpse of what this innovative software can do, open the "one-we-made-earlier" project in the **Connect with QuarkImmedia** folder, which includes a link to the Quark Web site formatted with *QuarkImmedia.*

Think you can do better? Just launch the demo version of *QuarkXPress* on the CD – *Immedia* is inside Quark's **XTension** folder, so you can access its functions through the new **QuarkImmedia** menu. If you don't already have Sound Manager and QuickTime installed, then you'll find them in the Resources section of the CD.

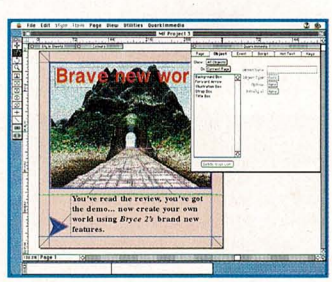
For an in-depth look at *Immedia,* see our review on page 76 – and use the files in the **How-to's** folder on the CD to follow our step-by-step tutorial starting on page 78.



Take text to another dimension with the new multimedia world of *QuarkImmedia.*

To Install

Install the necessary Extensions and *QuarkImmedia* will run from CD.



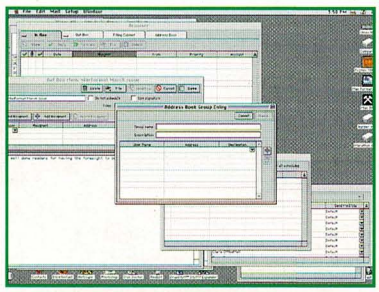
Brave new world indeed. *QuarkImmedia* leaves normal DTP behind.

Claris Emailer

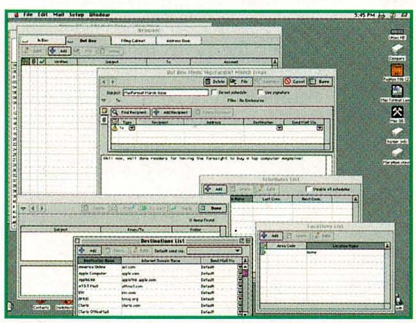
What is it? ***Complete,*** fully working e-mail package!
Where you'll find it: Claris Emailer folder
Mac: Any
PowerMac: Any
Requires: System 7.0, 1.5Mb RAM, 2Mb hard disk space plus 1Mb for saved messages, a modem.

Another MACFORMAT, and another full commercial product! How do we do it? Bribery and blackmail, mainly... Last issue we gave you *xRes*, and this issue you get the complete *Claris Emailer 1.1v3*. So throw away your pens and paper, get yourself an Internet connection and start sending your friends instantaneous mail – cheaper than a postage stamp and faster than the Royal Mail. How have you survived so long without e-mail?

To start *Claris Emailer*, simply install it onto your hard disk and double-click to open. You should now be able to see the Browser, the main interface for *Emailer* – from here, you can send and receive mail. The Browser offers four main sections: the In box (where your incoming mail will be stored); the Out box (where your sent mail will be stored); the Filing Cabinet (where your filed mail will be stored); and the Address Book (where you will store all your e-mail addresses). To send a message or receive mail, you must first be connected to an on-line service. To do this choose **Connect Now** from the **Mail** menu in the menu bar. If you want to create a message, choose **New** from the **Mail** menu. Then give your message a title in the Subject field and address it (in the Recipient and Address fields). Then, simply type a message in the main text box and press **Send Now** – it's as simple as that. To read mail that's been sent to you, open the In box from the Browser and double-click on your new message. You may then reply to this message by simply clicking on the Reply option from the Browser.



Now you have no excuse not to get with the '90s with this full e-mail package from Claris – simply type and send!



All your e-mailing needs are here – received, sent and filed mail can all be accessed from the main browser in *Claris Emailer.*

To Install

If you experience any problems installing *Emailer* try switching off your Extensions. You do this by restarting while holding down the **[shift]** key until you see the "Welcome to Macintosh" message.

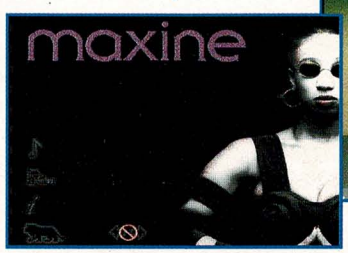
Jungle Activated!

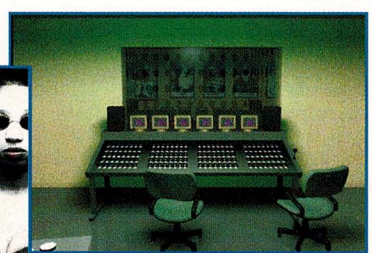
What is it? Interactive music demo
Where you'll find it: Demos folder
Mac: 68040
PowerMac: Any
Requires: System 7.1, 8Mb RAM, 12Mb hard disk space (if you choose to install it).

Ever wanted the carefree, trendy life of a record producer? Well, you can be Pete Waterman/Trevor Horn for a few minutes in this exclusive music demo by Media Fusion. If you're familiar with Jungle music, then this demo will be right up your street. And if you're not, then prepare to be familiarised, as a gentle musical thud accompanies you on your travels throughout this multimedia experience.

Find out what you can do with a computerised keyboard....

Check out what Maxine has to say for herself and sample her music.





Mix, match and play music producer with *Jungle Activated!*

In the *Jungle Activated!* demo, you get a virtual walkthrough of a recording studio and a chance to try your hand at mixing some of your own sounds.

The demo enables you to add or modify bass, breakbeat, loop and keyboard sounds from a limited selection. Your starting point is the main studio, where you can swing the cursor around the studio and click on various items within the room: click on a picture, for example, and it'll bring up some information and a sound file on that particular artist. You can also listen to a real record producer giving you the low-down on Jungle music and producing CDs.

To Install

Jungle will run from the CD.

CD Index

Find exactly what you want using this folder-by-folder guide to this issue's MACFORMAT Cover CD.

A world in your image in *Caesar.*

Claris Emailer
Complete and fully-working e-mail suite – *Claris Emailer 1.1v3*

Demos
Jungle Activated!
MLPro computer catalogue database
Musée d'Orsay (reviewed page 90) plus Michelangelo previews
Nightingale scorewriter (reviewed page 86) plus NoteView 2.20
QuarkImmedia1.01 (reviewed page 76), including QuarkXPress demos for PowerPC and 68K Macs
QuickCards
Scrutiny in the Great Round (reviewed page 91)

Game Demos
Alley 19
Caesar II (reviewed page 104)
Close Combat (reviewed page 106)
Mah Jong Parlour (reviewed page 114)
Over the Reich
Warcraft II
Warbirds
You Don't Know Jack!

Useful Mac Tools
45 selected utilities to help you learn more about your Mac and optimise its performance. (See our Mac quiz, page 32)

How-to's
Sample files and resources – all you need to follow this issue's tutorials
AppleScript Example Scripts (see page 44)
QuarkImmedia (see page 78)
MoviePlayer (see page 56), including plug-ins and two useful utilities: ConvertToMovie and QuickTime Streamliner

HyperStudio Player 3.0
Use this multimedia player to view and use stacks created by the HyperStudio multimedia authoring application on last issue's CD.

Jonni Starr Episode 3
The latest exciting instalment of our exclusive (Mac-created!) animated cartoon serial!

MACFORMAT 48 Floppy
Better Edit Keys 1.0.1
Clicker 4.0
CopyPaste 3.2.1

CD Index (continued)

FilesMenu
Focus VoiceCalendar v2.8
FunKeys 1.2 Folder
Icon Archiver 2.0 FAT
New Menu 1.0b3
NoDesktopCleanup 1.3
NS-Shaft 1.1
Sentry 3.6
SilverTwoTabCopland#02
TicTacToe 2.5
Total Restart 1.3
2 Line Names

Readers' Corner
More stunning artwork and other contributions from talented MACFORMAT readers.

Resources
Invaluable software to enhance your Mac!

Get in some practice here before you go bowling with the big boys.

Acrobat Installer 3.0
CDIconKiller 1.3.3
Disinfectant
DOCMaker SW v4.7
DropStuff 4.0
GraphicConverter 2.6
MacFormat CD Index (Disk Wizard)
NewsWatcher
QuickTime 2.5
ResEdit
ShrinkWrap 2.1
SoftwareFPU 3.04
Sound Manager 3.2
StuffIt Expander

Shareware Central
All the low-cost and no-cost software reviewed this issue, beginning on page 116:
Clicker 4.0
Desktop Patterns
Feò's Icons, vols 1 and 2
FunKeys 1.2 Folder
Guide To The Artists
InDisk Labeler
MacOrganize 2.3.3
Mosaics
OncePerDay
Program Switcher v4.2.0
Sentry 3.6
Skittles
Snow for Macintosh
Talking Clock Pro
3D Control Panels 1.2
2 line Names
WorkinTooHard1.0b1

Shareware Plus
100Mb of the very latest shareware from the Internet, arranged in handy categories to help you track down the software you fancy.

Caesar II

What is it? Interactive game demo
Where you'll find it: Game demos folder
Mac: 68040
PowerMac: Any
Requires: System 7.1 or later, 8 Mb RAM, 2x speed CD-ROM drive, 6.5 Mb hard disk space.

Ever thought you could have built better cities than those pesky Romans with their obsession for straight roads? Well, here's your chance. You can be designer, architect and construction boss rolled into one for the duration of this game. It's like *SimCity* set in ancient Rome. (See our review on page 104.)

Your task is to build housing that the Conservatives won't be able to sell off, put in water supplies that they can't privatise, provide markets that they can't pretend don't exist and fill the town with people that all have the right to vote. In other words, build a utopia. The idea is that you're out to impress the Emperor – and in this limited version, you've only got 10 years to do it. Well, Mrs Thatcher managed it... Your aim is to "Romanise" the world, by building thriving cities and making sure nobody stands in your way. If you succeed, you will become Emperor.

For space reasons, this demo does not include *Caesar II's* on-line help, tips and history features, and it also lacks the rendered animation sequences and multiple music-tracks of the full version. You also don't get access to the complete game's "Provincial" mode, where you connect your city to existing settlements, expand them into industrial and trading centres, then protect from invaders using legions, forts and walls. You'll have enough to do as it is...

Oh, now where shall I put Auntie Beryl's two-bedroomed bungalow?

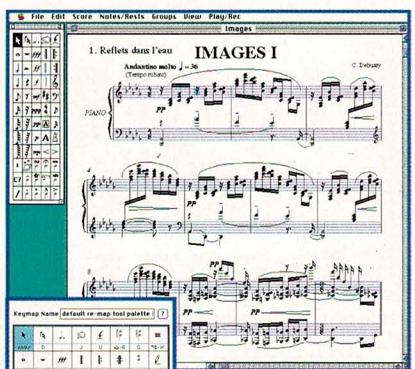
I want a wall here, oh and perhaps one here so those nasty subversives can't get in...

To get started and give you an understanding of how the game works, double-click the *Caesar* icon to open the game, then hit the **Query** (**[?]**) button, located in the **Toolbox.** Click on this, and then anything in the map window. You follow this by using the pop-up menu at the top of the **Toolbox** to see how and where your city is in need... The fate of your people is in your hands!

To Install

Caesar will run from the CD.

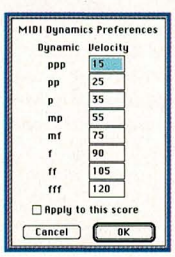
Nightingale



What is it? Save-disabled score-notation demo
Where you'll find it: Demos folder
Mac: 68030
PowerMac: Any
Requires: Any System; 2.2Mb RAM if using System 7.0 and above, 5.5Mb if below; 8Mb of hard disk space.

If music is your cup of tea, and more specifically all those little marks on paper, then *Nightingale* is just the thing for you. It's reviewed on page 86, and this save-disabled version enables you to try out its range of powerful yet easy-to-use features.

Designed by composers, this package is a powerful MIDI-compatible program that enables you to create, edit and print musical scores. You can create up to 64 staves and a total of 100 voices, and you have the option of importing music from any MIDI instrument using either Real Time or Step Time Recording.



Attach a MIDI sound system and pump your own uniquely created sounds around your house!

You can then play your masterpieces through speakers or through your built-in sound system using QuickTime and MIDI QuickTime, which are both available in the ***Nightingale*** **Utilities** folder.

Also included on the CD is a copy of *NoteView*, which is a view-and-listen-only version of *Nightingale*. This is used primarily for viewing and listening to scores transmitted electronically via the Internet without the need to download the full application.

This demo includes a full tutorial – you can't miss it, it's in the **Demo tutorial** folder – to get you started, and it's an excellent sampler of the real thing.

They say Mozart never blotted a single note. Now with *Nightingale* you can say the same!

Take your pick from a plethora of symbols, drop 'em on the page, and you could dream up a number one hit!

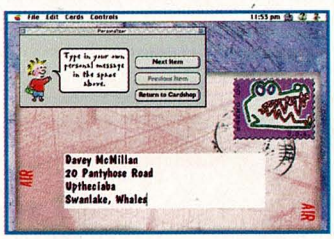
To Install

Nightingale runs from the CD.

QuickCards

What is it? Interactive demo
Where you'll find it: Demos folder
Mac: Any
PowerMac: Any
Requires: System 7, 5.5Mb RAM, QuickTime 2.0, Sound Manager 3.0.

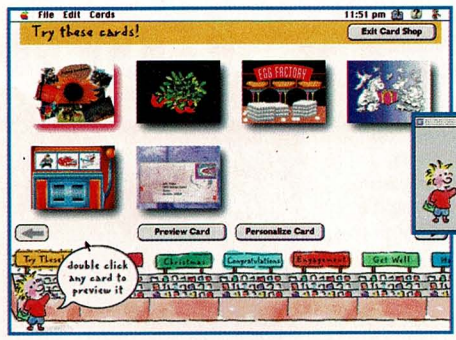
Never again will you have to rush out at 5:15 to scour the card shops for that last-minute birthday card for Uncle Bob, miss the post and end up in his bad books. Here's the up-to-the minute alternative: *QuickCards*. You can browse the *QuickCards* shop and pick out the one you like – there's a card for every occasion. Once you've found the one you want, you can then add your own personal touch and send it, either on floppy or as an e-mail attachment – using your new *Claris Emailer* program to mail it! Life couldn't be simpler.

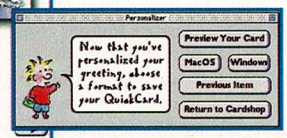


Send your personalised cards to all your favourite people or just send them to yourself.

In this demo version you get to preview all of the 61 greetings cards available in the full version, plus a special section entitled **Try These,** which presents six fully functioning cards that you can personalise with snapshots, video and text. Don't forget that there's a Valentine card tucked away in there, so get in quick and send a card to your loved one. (Bad luck if you're reading this on the 15th...)

If you want to make your own cards, start by double-clicking on the **QuickCards Limited** folder (in the *QuickCards* demo folder). Then double-click on the **QuickCards Limited** icon and click on the **Try These** card-rack, choosing





Pick your card from a host of occasions, add some text and a video-clip and hey presto!

Start out with "Try These" and send all your friends personalised birthday cards.

Personalise Card. From here, a dialogue window will guide you through the stages of importing movies and text, with options to preview your card when you have completed it, and save it in either Mac OS or *Windows* format.

These cards can be good ways of sending graphical letters – a floppy can hold six pages of text plus a movie. But when you're recording movies you should have your sound set to either 11 or 22kHz – and if you're recording for playback on *Windows*, you should record at 8-bit. For playback on *Windows* machines, the cards must have file names no longer than eight characters, followed by ".exe".

To Install

QuickCards runs from CD, or install it on your hard disk.

xRes serial number!

Last issue we brought you the complete *xRes 2.0SE* on a bonus Cover CD (UK & Europe only). The serial number needed to run it is in a text file called "Important" within the main *xRes* folder on that CD.

Musée d'Orsay

What is it? Rolling preview
Where you'll find it: Demos folder
Mac: 68040
PowerMac: Any
Requires: System 7.0, 5Mb RAM, 2x speed CD-ROM drive.

This must be the ultimate CD-ROM on Impressionist art. It focuses on the greatest Impressionist museum in France, which houses works by some of the best-known artists of the 19th century, from Cézanne and Van Gogh to Hoffman.

This rolling preview shows you slices of the full CD-ROM, with a stroll around the museum and a whistle-stop tour through the many splinter groups of Impressionism.

You also get an introductory analysis of Impressionist art itself, with an absorbing discussion and dissection of a particular picture, plus snippets of information on the artists, their lives and influences. This is a colourful, evocative preview of the full product (reviewed on page 90), giving you virtual admission to a great museum.

Get a feel for the size and magnitude of some of the museum's works with this handy scaling utility.

All the world's greatest Impressionist artists are here for you to see. So come and cast an appreciative eye over them.

To Install

Musée d'Orsay runs from the CD. To run it, though, you'll find it helps first to quit all applications in use, as well as "resident programs" and background tasks (networking and fax-modems, for instance), before launching the *d'Orsay* preview.

Got a problem?

Before installing software from the Cover CD or Floppy Disk, we recommend you always back up any important work on your hard disk. This precaution will avoid problems if it turns out that a program isn't compatible with your Mac set-up.

We make every effort to check our Cover Disks for compatibility and viruses, but the information here is intended as a guide only, and MACFORMAT cannot be held responsible for any damage to data, any inability to use this software or any resulting losses. So please back up first.

If your CD-ROM or disk is defective, return it to us and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will give you exactly the same problem!

Enclose a self-addressed padded envelope (but we'll pay return postage) with the disk or CD, and a description of the fault. Please do not return disks or CDs to the editorial office; we don't hold any stocks of them and can only refer you to the appropriate address below.

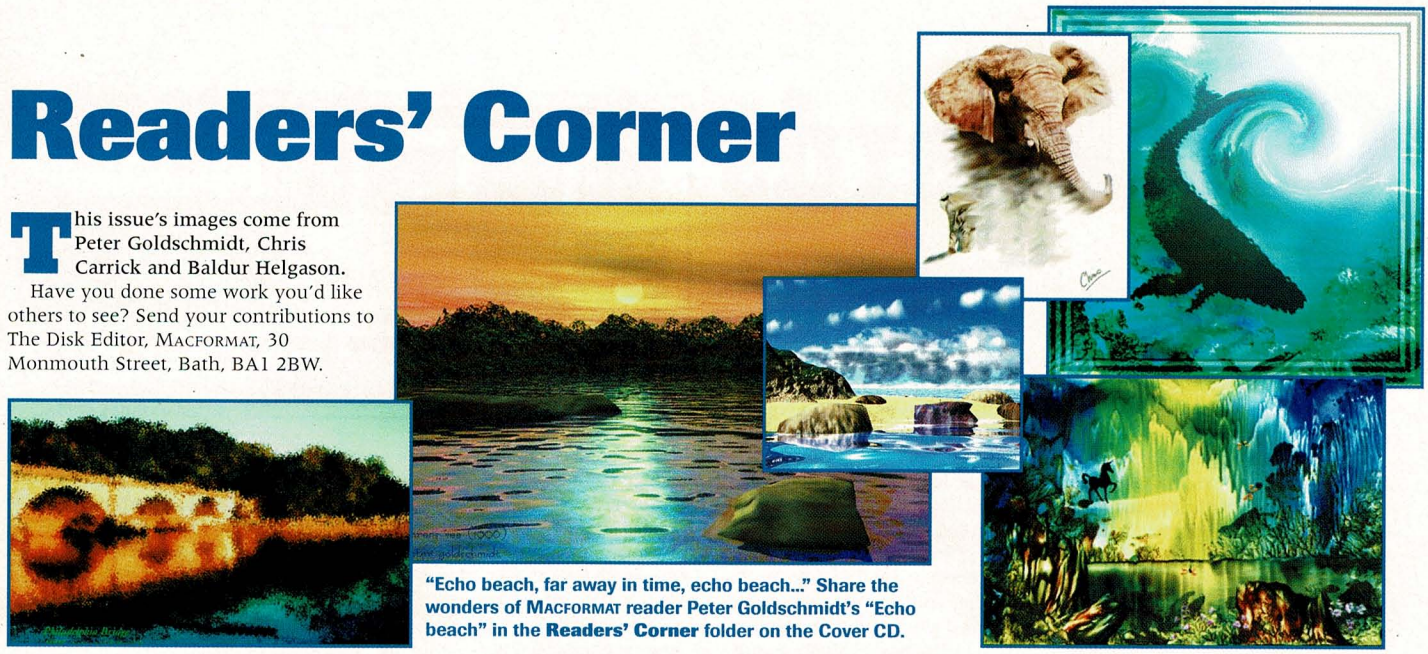
Return faulty CD-ROMs to:
MACFORMAT CD returns
PC Wise Ltd, Dowlais Top Business Park,
Dowlais, Merthyr Tydfil,
Mid Glamorgan
South Wales C48 2YY

Return faulty HD disks to:
TIB plc, TIB House
11 Edward Street
Bradford BD4 7BH

Readers' Corner

This issue's images come from Peter Goldschmidt, Chris Carrick and Baldur Helgason.

Have you done some work you'd like others to see? Send your contributions to The Disk Editor, MACFORMAT, 30 Monmouth Street, Bath, BA1 2BW.



"Echo beach, far away in time, echo beach..." Share the wonders of MACFORMAT reader Peter Goldschmidt's "Echo beach" in the **Readers' Corner** folder on the Cover CD.

On the Floppy

This issue, your floppy disk is brimming with games, handy utilities and labour-saving devices so good that you'll wonder how you ever coped without them. (All these are included on the Cover CD as well in the **MacFormat 48 Floppy** folder.)

CopyPaste

What is it? Shareware utility
Where you'll find it: Floppy folder
Requires: any Mac

Ever felt limited by having only one Clipboard? Irritated by continually switching applications to copy and paste one item at a time? Well, your copy-paste blues are over with this great little utility from Peter Hoerster. *CopyPaste* gives you ten separate Clipboards, enabling you to copy separate items in succession in the order you want. Send Peter your shareware registration fee for the full version, which also comes with the ability to create ten separate clip-archives that enable you to copy an unlimited amount of text – and this can then be opened in any word processor.

NS-Shaft

What is it? Shareware game
Where you'll find it: Floppy folder
Requires: any Mac

NS-Shaft is a simple arcade game that will keep you amused for hours. You jump from one rising platform to another using the arrow keys, and dive deeper into the cave. But be sure to avoid the spikes at the top and don't miss your target – otherwise you'll fall down into a bottomless abyss.

Also on the disk

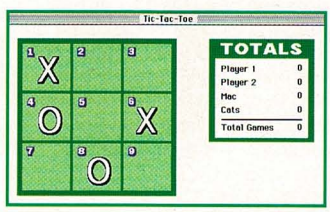
■ **FocusVoiceCalendar 2.8**
A sophisticated digital calendar that enables you to enter up to 32,000 messages with a single click.

■ **FilesMenu**
A handy System menu, this gives you easy access to your most commonly used files.

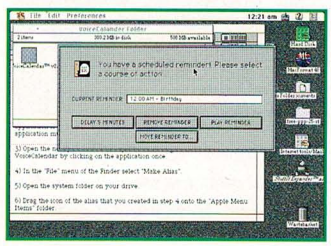
■ **New Menu**
This adds a hierarchical menu to your Finder's **New Folder** choice.

■ **NoDesktopCleanup**
Want to add a confirmation dialogue to any menu item, in any application, plus disable menu items? This is the utility for you.

■ **Icon Archiver 2.0**
A powerful database for scanning, retrieving and storing your icons.



Test your noughts and crosses skills with the ultimate player...



You'll never forget to send Uncle Bob a *QuickCards* birthday card now...!

Don't ever be caught in the one-line-folder dilemma again!

■ **SilverTwoTabCopland**
A selection of Copland folder icons.

■ **Sentry 3.6**
A handy control panel device that logs the time and date your computer is used.

■ **2 Line Names**
For the less concise, this enables you to enter file and disk names of more than one line.

■ **MouseClick**
This enables you to play groovy sounds whenever you click the mouse or use the keyboard keys.

Move on up, move on out, and try to jump onto the next platform while you're there...

The innocent-looking little utility below will change your life!

How to use your disk

High density floppy disks normally contain up to 1.4Mb of software, but so that we can bring you as many useful programs as possible, we use a compression utility to fit more on. This means you need to decompress the software before using our Disk; this issue you'll need 4.2Mb of hard disk space.

We also recommend that you always make a back-up of the MACFORMAT Cover Disk, just in case anything goes wrong.

To decompress the Cover Disk contents, open the MacFormat 48 folder on your hard disk and double-click on the MacFormat 48 icon. You'll see a screen telling you about the compression utility we've used. Click Continue when you're ready.

A box then asks you where you want to save the software. Choose the place on your hard disk where you want everything stored, and click Save to get hold of this issue's programs.

Our pen will change the way you look at work.

See us at the Windows Show Olympia, London, Feb 25-28 **Stand 278**

Now you can have any image you want.

Photo-composites are not only faster and easier to create using Wacom's UltraPad™ and UltraPen™ Eraser, but they look so much better too.

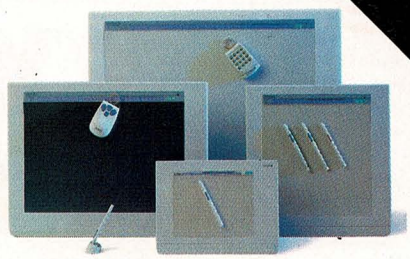
For a start, you can cut and paste with hairsplitting accuracy, and when it comes to ghosting and blending images, you can use the pen's pressure sensitivity to achieve a subtlety that's impossible with a mouse.

Of course, you'll also be able to take advantage of all those features in popular graphics packages that can only be used with a pressure sensitive pen – 11 of them in Photoshop alone! And because nothing's ever perfect, our pen will let you erase any mistakes at a stroke.

With no batteries or cord to tie you down, the UltraPad and UltraPen Eraser can be used more effectively than a mouse for any software program for Mac, Windows, or SGI.

Contact your local reseller now.

You'll find you never look at work the same way again.



The UltraPad series, from A5 to A2.

Available from:

DABs Direct
0800 680000

Jigsaw Direct
0115 942 2990

Universal Computer Supplies
0181 991 5002

MacLine
0181 401 1111

MacWarehouse
0800 181332

WACOM

All trademarks and registered trademarks acknowledged.

FutureNet

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FutureNet is a popular place, and some bits are more popular than others. Here, just for you, we list the pages that have been hit the hardest over the last few weeks.
What's hot
FutureNet World News
This is the news... All the top goings on from the UK and around the world, including war, crime, politics, showbiz and, of course, the astonishingly popular Euro 96 footy tournament. Find out all about them here.
Filth!
Sex, smut, filth, call it what you want. If you're not getting enough, get some more with the this in-depth probing of sex on the Internet. From .net
The Ultimate Macintosh
If you've got a Mac, you need this. The definitive set of links and resources for Mac users - hints, software, games, it's all here, courtesy of MacFormat
The PC Gamer Hotlist
Everyone's been Quaking in their boots waiting for id to release their latest blasting masterpiece. Now you can get it, and some other, lesser known, games, from our mega-bandwidth ftp server - thank you, PC Gamer
The Total Football Forum
Unsurpassed fun banter from TF's avid readers -

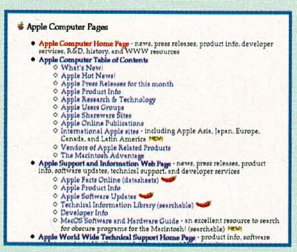
Daily news, computing, sport, crafts and music on FutureNet.

world news every weekday and interactive forums.

It's Future Publishing's official Web site and Europe's busiest commercial site, with over 450,000 registered users.

Ultimate Macintosh

The Ultimate Macintosh is the authoritative guide to Macintosh sites on the Internet. Compiled and edited by Michael Yee in the United States, The Ultimate Macintosh points you in the direction of every worthwhile Mac page, including official Apple sites, news sources, and shareware sites for downloading software and Internet information.


Apple Computer Pages
Apple Computer Home Page - news, press releases, product info, developer services, R&D, history, and WWW resources
Apple Computer Table of Contents
What's New!
Apple Hot News!
Apple Press Releases for this month
Apple Product Info
Apple Research & Technology
Apple Users Groups
Apple Shareware Sites
Apple Online Publications
International Apple sites - including Apple Asia, Japan, Europe, Canada, and Latin America NEW!
Vendors of Apple Related Products
The Macintosh Advantage
Apple Support and Information Web Page - news, press releases, product info, software updates, technical support, and developer services
Apple Facts Online (datasheets)
Apple Product Info
Apple Software Updates
Technical Information Library (searchable)
Developer Info
MacOS Software and Hardware Guide - an excellent resource to search for obscure programs for the Macintosh! (searchable) NEW!
Apple World Wide Technical Support Home Page - product info, software

The biggest list of Mac links you've ever seen – Ultimate Mac.

You'll also find pointers to areas concentrating on hardware, graphics, programming and more. A bumper guide to games joins a list of the major Mac hardware and software firms and their Web pages.

The Ultimate Macintosh is part of MACFORMAT ON-LINE, MACFORMAT's own Web site. Just point your Web browser at http://www.futurenet.co.uk/computing/macformat.html/

Your Web pages

Get more information on the Apple-NeXT deal and turn your Web browser into a multimedia player.

What's NeXT?

As you'll have read last issue, Apple has bought up state-of-the-art firm NeXT Software, to use its OpenStep operating system as the basis for the next Mac OS. You'll find all the latest announcements and technical details in our extra-large News section, starting on page 16. If you need to know more, though, the Web has plenty of announcements on the merger, along with background briefings showing how NeXT's software works.

Name	Web address

Mac OS Strategy — **http://macos.apple.com/macos/releases/rhapsody/letter.html/**

The official Apple word on the firm's plans for the Mac OS, NextStep and the new system that will bring the two together. Clear language and layout make this site a good primer.

OpenStep Guide — **http://www.next.com/OPENSTEP/**

NeXT's own guide to its operating system shows why it needs Apple to succeed: it's full of unnecessary jargon. This is a site definitely geared towards the corporate customer, but some clarity would help.

StepWise — **http://www.stepwise.com/**

This excellent site offers links to coverage of the latest news developments as the Apple-NeXT merger progresses – and it's run on NextStep as well!

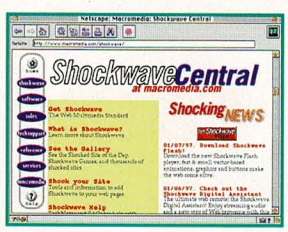
Intro to NextStep — **http://www3.pair.com/mccarthy/nextstep/index.html/**

Thomas McCarthy's personable site offers a user's guide to NextStep, giving you a sense of how it works and how it feels to use it.

Mac-NeXT FAQ — **http://www.enteract.com/~diffwerk/next-mac-faq.html/**

Once you've digested that lot, try this guide to using Macs and NeXT machines together. These pages concentrate on the more technical aspects of the subject.

The multimedia Web



QuarkImmedia (reviewed on page 76) is just the latest in a flood of tools designed to make it easier for you to produce interactive material for the Web. The latest version of the free *Immedia Viewer,* which enables you to enjoy interactive productions made with *Immedia,* is available from **http://www.quark.com/qim001.htm**. *Immedia* is just the latest in a string of Web multimedia systems for the Mac, though. Here's a brief overview, taking in the established systems and a couple of newcomers.

Name	Web address

Shockwave Central — **http://www.macromedia.com/shockwave/**

Macromedia's system gives you interactive productions embedded within a Web page. You'll find the plug-ins you need here, along with links to dozens of Shocked sites.

Adobe Acrobat Overview — **http://www.adobe.com/prodindex/acrobat/main.html/**

You can make files using Adobe's Portable Document Format with most text-and-graphic-based programs, but the results are more "electronic document" than full multimedia. Get your free *Acrobat Reader* and discover more here.

QuickTime — **http://quicktime.apple.com/**

Apple's video system is now expanding to support other formats as it moves into a prominent position on the Web. Play videos, zoom around virtual reality environments and play sound files with the plug-ins on this site.

Electrifier World — **http://www.electrifier.com/**

Based on Apple's QuickDraw GX, Lari's Electrifier produces tiny files of animation which download over the Web quickly. You'll even find a free copy of *LightningDraw Electric* so you can create your own sequences.

Home Page of HyperStudio — **http://www.hyperstudio.com/**

HyperStudio is a popular program in schools and colleges, with easy-to-pick-up tools for creating multimedia productions. Now you can place them on the Web, too: this site explains how and gives you the software you need.

Get MacZilla! — **http://maczilla.com/**

This is where you, er, get *MacZilla,* the all-purpose video and audio shareware Web player with a sense of a humour.

Access the Internet with Direct Connection and you'll never feel left out in the cold. Call us and you'll be greeted by a helpful team who understand your concerns. Join us and you'll be welcomed as a fellow member – not treated like the number on an invoice. We've been connecting people since 1989, we've solved problems that most net providers have only just discovered, and we've learnt hundreds of ways to be more useful and more accommodating. So call Direct Connection today, and cross the threshold to a friendlier Internet.

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- ★ Dial-up account just £11.49 ex VAT a month, £13.50 inc VAT

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http://www.dircon.net

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EXPO '97
San Francisco

Mac OS joined by new Apple OS ■ System 7 programs to work in new OS ■ Euro Mac sales boom but Apple makes loss ■ News Editor: Richard Hill

MACFORMAT NEWS

Now it's *two* OS's from Apple

Rhapsody joins the Mac OS

The Mac OS you use today will be joined by a second OS from Apple in 1998. Rhapsody is the codename for the new, separate OS, which will be created using technology from NeXT, the company Apple bought late last year (see last issue's News). While Apple believes that anyone using the Mac will eventually want to move over to Rhapsody because of the powerful features it will offer, the firm will support and evolve System 7 alongside Rhapsody.

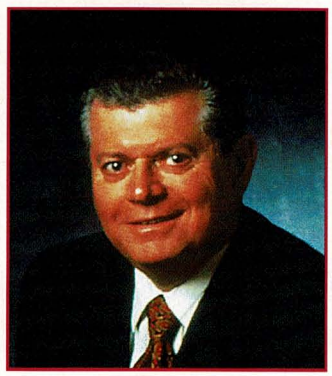
Apple's management, including chief Gil Amelio and research head Ellen Hancock, set out Rhapsody's structure and main features at the recent Macworld Expo in San Francisco, along with an ambitious timetable for releasing the system.

Rhapsody will offer state-of-the-art features designed to take advantage of the fastest personal computers available, including the ability to share processor time between several programs at once and protect other programs should one happen to crash.

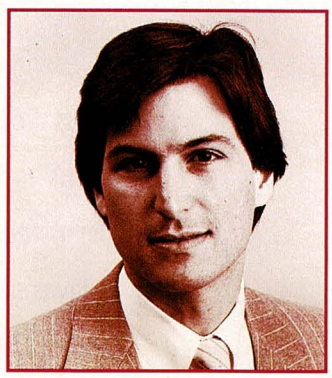
Rhapsody should also be easy to write software for, encouraging a wider variety of programs. NeXT and Apple founder Steve Jobs has given many public demonstrations of NeXT's development tools, building a working word processor from scratch in less than five minutes.

The new software will bring together technologies and ideas from both the Mac OS and NeXT's own OS NextStep, preserving the look and feel of the Mac while offering the benefits of the latter (see the "Anatomy of Rhapsody" box). Apple has promised Rhapsody will run on any Mac you can buy today, but has conspicuously avoided further commitments to it working on older Macs – even recent PowerMacs – until it has developed the OS further. Rhapsody is unlikely to appear on 68K Macs, even though NextStep itself has already been converted to work on the 68000 processor family, but it will work on the PowerPC Platform computers, which are set for release later on this year.

Rhapsody will initially appear in three stages: an early version, closely based on NextStep for a quick release, will arrive later this year. It will be aimed at professional programmers wishing to write software for the new OS, so will not be available to buy. At the turn of the year, an improved version will appear, giving the first real impression of how Rhapsody will look and

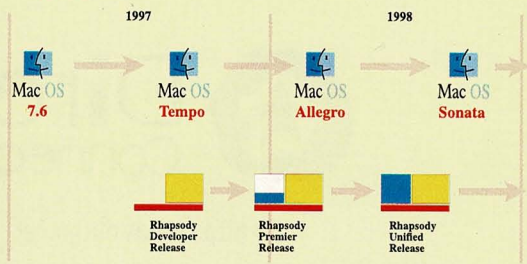


Apple boss Gil Amelio continued what he termed "the renaissance of Apple" at San Francisco's Expo.



Steve Jobs reappeared on the Apple stage during a marathon keynote speech introducing Rhapsody.

Apple's OS duet



The schedule (left) for *both* of Apple's operating systems was unveiled at the recent Macworld Expo (far left). The firm will develop Mac OS 7 and Rhapsody in parallel, gradually adding "Blue Box" or Mac OS compatibility to OpenStep's "Yellow Box". The complete Rhapsody debuts in 1998 (see the "Anatomy of Rhapsody" box).

EXPO '97
San Francisco

More open Apple promised at Expo

The centrepiece of the Expo as always, Apple's keynote speech by Gil Amelio gave the first details of Rhapsody. It also saw Apple's two founders appear on the same stage as the firm's new blood, and offered a light-hearted portrayal of Apple's battle against impossible odds, as the firm continues rebuilding after 1996's crises.

Following clips from 1996's smash-hit film *Independence Day*, where an Apple PowerBook played a pivotal part in saving the world from an alien attack, the film's star Jeff Goldblum appeared on stage. He remarked, "In *Jurassic Park* I play an expert in chaos theory, so I'm qualified to speak at an Apple event."

And Goldblum might not have been kidding. For the rest of the evening, Gil Amelio presided over a muddled procession of announcements, demonstrations of new technology and cameo appearances from reps of major computer firms announcing support for Apple.

The highpoint came when Steve Jobs returned to the Apple stage. After an ovation from a delighted audience, Jobs gave a brisk demonstration of NextStep's power, and won over the room.

It all finished nearly three hours later, with Jobs being joined on stage by Apple co-founder Steve Wozniak, and Amelio introducing a list of Apple-endorsing celebrities. Few seemed to understand what Gregory Hines or Muhammed Ali had to do with the Mac, but substantial points did emerge from the overall mess.

Amelio proclaimed the next year, the second of his three-year strategy to revive the firm, would see "the renaissance of Apple". He saw the company taking advantage of a significant change in society: "The age of communications is giving way to the interactive age", he said, "a dramatic shift that changes everything."

The Apple chief said the firm was changing its outlook to adapt to such trends. "To the rest of the world, the Mac seems walled in," he said. Layers of software like QuickTime and Java, which work across many types of computers, were the the future. "The best OS is one that's invisible."

With its *Independence Day* introduction, Apple borrowed the language of the comic book to illustrate its dramatic escape from its troubles, heroically leaping clear of certain death. Let's hope nobody at Apple finds out that Marvel Comics went bankrupt a few weeks ago.

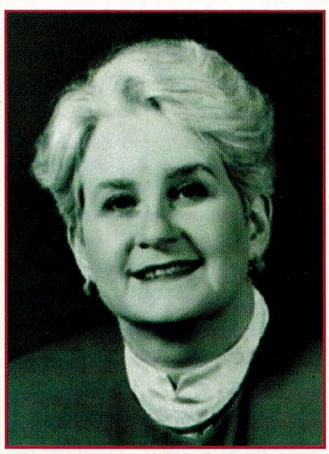
behave. Apple predicts the first public release of Rhapsody will be in mid-1998.

It's a tight timetable for a brand-new operating system, but major elements of Rhapsody have already been written for the PowerPC chips on which they'll run.

System 7's future

The announcement of Rhapsody doesn't mean the end of System 7: the Mac OS we know today will continue to evolve through this year and also into the next. Apple announced two major upgrades, Allegro and Sonata, beyond the just-released Mac OS 7.6 and the Tempo release set for July. The firm didn't offer any suggestions, however, of what would be in those upgrades when they eventually appear on the shelves.

System 7 will continue to be available alongside Rhapsody while it remains popular with Mac users, but Rhapsody will also be able to run System 7 software (see the "Anatomy of Rhapsody" box).



Ellen Hancock is the driving force behind Apple's transformation, acting on Amelio's plans with decisive measures to get the job done.

Anatomy of Rhapsody

The deal that will enable the Mac OS's successor to be created was only signed on Friday 20 December last year, but Apple already has a structure in place, plus a timetable for releasing versions of Rhapsody as it's developed.

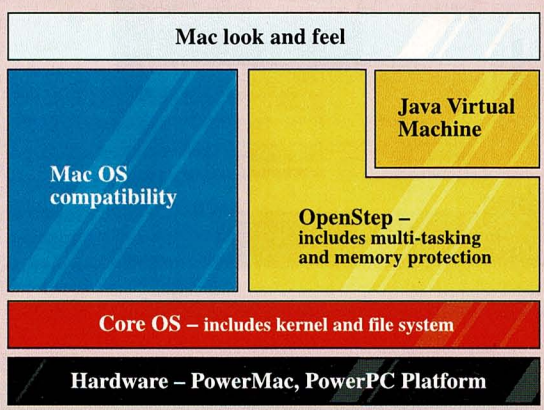
Rhapsody's core will be a kernel of computer code handling the most essential parts of what an operating system does – enabling programs to run. With a choice of code available to it, Apple is yet to decide which to use. Chief Technology Officer Ellen Hancock said at California's recent Upside Technology Summit that it was "leaning towards the Mach kernel", the NeXT code used at the heart of OpenStep. Mach offers many of the same properties as Apple's Copland kernel, once earmarked for the heart of the Mac OS: it can run several programs at once, sharing processor time between them, and will protect programs from any faults that may occur within one.

Mach has never been released for the PowerPC chip, although NeXT has produced a version which works on the processor. Mach currently runs on Intel's 80x86 and Pentium chips, opening the tantalising possibility of converting Rhapsody to run on PCs as well as Mac computers. Hancock has been careful not to rule that out, without raising expectations that it would happen soon. The faster PowerPC machines remain Apple's priority.

NeXT's OpenStep code will definitely form the main part of Rhapsody, and the most vital of today's Mac technologies will be converted to work under it. These include QuickTime and related systems like QuickDraw 3D, the ColorSync colour handling system and AppleScript for automating tasks. The OpenDoc component system, enabling small programs to work within a single document, will work alongside Sun's Java and NeXT's WebObjects, which follow similar principles.

Rhapsody will differ greatly from the Mac OS in the way it displays its screen image and prints. The Mac OS uses Apple's own QuickDraw to display and print on most Macs, although many professional set-ups also use the industry standard PostScript to print. NextStep is fully PostScript-based, though, using it to produce its screen display as well. This means the relationship between screen and printed page is closer than in the Mac OS – essential for graphic design, for example.

Apple is currently talking to PostScript's designer Adobe about using the system within Rhapsody, as the latter firm is also developing new imaging systems. Whichever system Rhapsody eventually uses, you should be able to get print-outs which resemble your screen images more closely.


Mac look and feel
Mac OS compatibility
Java Virtual Machine
OpenStep – includes multi-tasking and memory protection
Core OS – includes kernel and file system
Hardware – PowerMac, PowerPC Platform

Rhapsody will run two separate sets of programming code, using a core kernel of vital functions to co-ordinate the two. Both should have a similar look and feel, though.

An area of code Apple calls Blue Box will work alongside the NextStep-based code. Blue Box will be able to run your System 7 software of today; it's actually the Mac OS converted across to run under Rhapsody. Blue Box will effectively be a Mac within a Mac: you'll be able to use it in a similar way to how you currently use your Mac, working in the Finder and opening programs, while you have Rhapsody programs open. If Blue Box crashes, your Rhapsody software will carry on operating.

Changes made to the stand-alone System 7, in upgrades like Tempo and Allegro, will be translated across to Blue Box as they are released. Blue Box and the NextStep area will be visually similar to prevent confusion. When it's finished, Rhapsody should just feel like you're running all your software, old and new, under a single, extremely powerful and flexible operating system.

EXPO '97
San Francisco

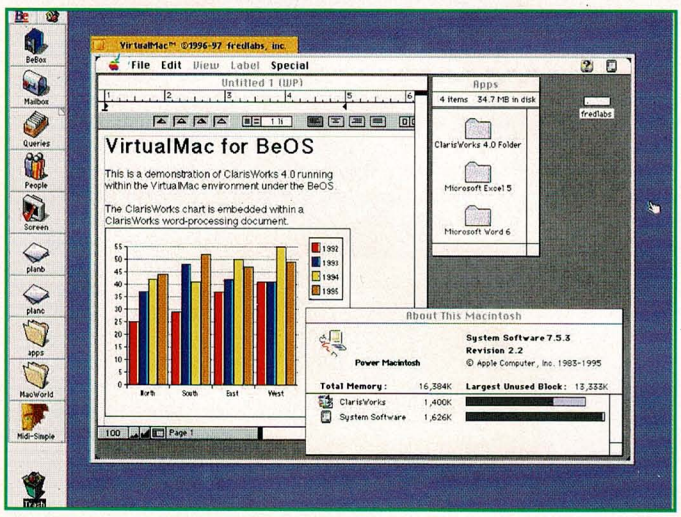
Mac software works under BeOS

San Francisco's Expo saw a return to business-as-usual for the firm many thought Apple would buy to further its own operating systems. Be Inc demonstrated the latest version of its BeOS, a developing high-speed operating system, running on PowerMacs. You'll be able to try the BeOS for yourself in the spring, when it will be included alongside the Mac OS on all of Power Computing's machines.

The firm also showed early versions of some of the first programs to run under the BeOS, including a working emulator capable of running Mac software. The live demonstrations of fredlabs' *VirtualMac* running *ClarisWorks* and *Microsoft Word* provided a delicious counterpoint to Apple's plans: it won't have System 7 programs working in the OS it chose over Be's until 1998.

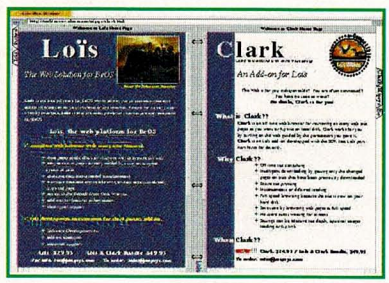
VirtualMac works in a similar way to *SoftWindows* under the Mac OS: it imitates the look and actions of the emulated system as accurately as possible. Traditionally, an emulator is slower and less stable than the original OS code it's based on, but is useful for running some software when you have to but don't want to spend extra cash on buying a second computer which includes the OS.

The idea of buying a PowerMac to run Mac software under a pretend Mac OS via the BeOS might seem daft, but it means you can choose between the BeOS and Rhapsody as both systems are developed, and still run your existing software under either. Be's own BeBox computer will also be able to run Mac programs under *VirtualMac*.



Here's a PowerMac running the BeOS pretending to be a Mac. *VirtualMac* may sound bizarre, but it could guarantee your programs run on future Macs.

Apple's got two operating systems now; you need another? The BeOS gets its first public release on the PowerMac this Spring.



***Loïs* offers an innovative approach to browsing the Web, and it's set to be one of the first programs available for the BeOS.**

First Be programs

The BeOS will of course be able to run its own programs, and early versions of the first software to arrive were shown at the Expo. Most of these programs should be on sale when the BeOS is released to the public this spring:

- Lorienne Software's ***Reggae*** is a word processor with DTP-like features. You can drop an object into your text document, at which point the text reflows around it automatically.
- ***LRPaint*** and ***LRDraw*** are image editing and drawing programs, also from Lorienne. The firm plans to offer the programs as a set.
- ***Loïs*** offers a new way of viewing the World Wide Web: You can display two pages alongside each other as if they were pages of a book, and there are also features for indexing or bookmarking Web pages automatically.
- What else could *Loïs's* companion program be called except ***Clark?*** *Clark's* an automated tool for downloading entire sites while you're busy elsewhere; you can then view the Web site at any time without spending time waiting for graphics to appear and so on. However, it doesn't fly around and save the world in its spare time.

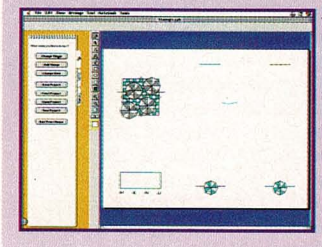
Pick of Expo: new products from the showfloor

The main business of the Expo, as always, takes place on the showfloor as firms announce their latest hardware and software. Look out for more details of these products as they arrive in the UK.

Corel Print House

A simple graphics package for everyday publishing, *Print House* enables you to create greetings cards, business forms, signs, calendars and more. It includes over 1,000 ready-to-use samples along with hundreds of photos and clip art images, and a further 100 different fonts.

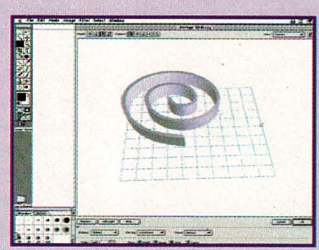
***Print House* has drawing and text tools for designing your publication and offers straightforward guidance for carrying out common tasks, such as adding a shadow to your text. The US price is $39.95, so you should expect a price of around £40 when it eventually appears in the UK.**



***Corel Print House* offers simple tools and good advice to help non-professionals achieve pro graphics.**

3D Dizzy

Vertigo Technology is an acclaimed graphics software publisher with experience on the professional Silicon Graphics computers; now it's preparing its first Mac release. *3D Dizzy* enables you to use full 3D models within the most popular 2D graphics programs. It works with any program using the Adobe plug-in system, including *Photoshop, Premiere, PhotoDeluxe* and *xRes.* You can load a 3D model into your document and change its size and position, still in 3D. You can also change the lighting effects on it. *Dizzy* supports



***Dizzy* works within *Photoshop* to create 3D models – click on OK and the model appears within your *Photoshop* document.**

EXPO '97
San Francisco

Dual-chip machines lead Mac charge

New PowerMacs from Apple led a flurry of new Mac-compatible computers announced or previewed at the Expo. Power Computing has launched its first-ever multiple-processor machine, while Umax has also announced new models.

Top of the Apple range is the 9600/200 MP, offering two mighty 200MHz 604e processors running in parallel. Programs like *Photoshop*, which has been rewritten to detect multiple processors, will run over 50% faster than before with the dual-processor system. Power Computing has trumped even this, though, with the PowerTower Pro 250 MP, the first Mac-compatible to use two 250MHz processors – or indeed any 250MHz chips. It's also offering a dual-chip 225MHz model. Both of these are likely to be more scarce than the slower Apple model, however.

Aside from its MP Mac, Apple is updating its entire professional PowerMac line-up with a series of new releases in mid-February. The 9600, 8600 and 7300 all feature faster chips than their predecessors the 9500, 8500 and 7600, but these new Macs see even bigger changes from Apple.

The 9600 and 8600 are both being redesigned to offer the sort of easy-open case we first saw in the 7600, where much of the Mac's insides flip open on hinges to give you access to the main board for upgrading your RAM.

The 9600 will also include a graphics card for video and multimedia production, while the graphics-conscious 8600 will offer a Zip drive for Iomega's fast-growing high-speed floppy disk successor. The 7300 is Apple's new all-rounder for businesses and serious users. You'll be able to upgrade it more than with previous models like the PowerMac 7200.

Umax is also vamping up its range with the introduction of a high-speed 240MHz 604e-based computer. We've listed the model in our table under its US title – look out for details in MACFORMAT of the equivalent machine in IMC Computer's Pulsar range in the UK.

Power and Apple are leading the charge towards multi-chip Macs with dual-chip models in their new ranges.

Power at home

There was just one entry into the home Mac market at Expo, but it was a strong one: Power Computing's PowerBase 200 offers a 200MHz 603e chip that you can upgrade with the daughtercard slot (usually found only in pro-level Macs). It also offers a 3D acceleration card and a modem, along with plenty of software to enjoy.

Look out for more details of these exciting machines as they reach the UK. You'll find details of all currently available Macs and Mac-compatibles on page 124. ➤

Mac OS computers for spring

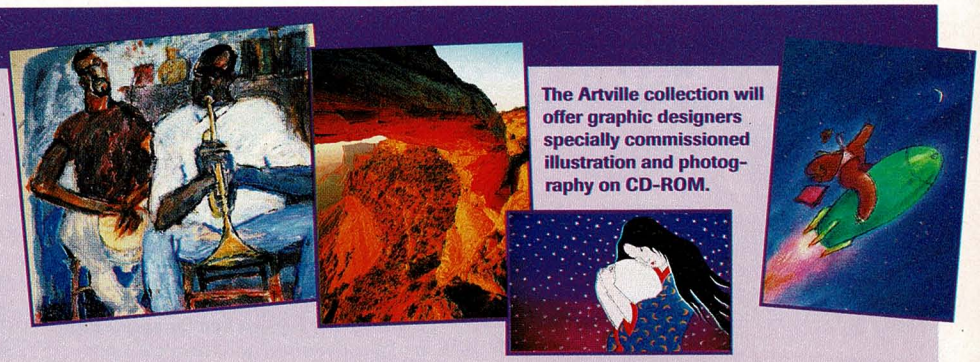
Model	Processor	Speed	RAM	Hard disk	On sale	US price
Apple Computer						
PowerMac 9600 MP	2 x 604e	200MHz	32Mb	4Gb	Feb	$4,700
PowerMac 9600	604e	200MHz	32Mb	4Gb	Feb	$3,700
PowerMac 8600	604e	200MHz	32Mb	2Gb	Feb	$3,200
PowerMac 7300	604e	200MHz	32Mb	2Gb	Feb	$2,700
Power Computing						
PowerTower Pro 250 MP	2 x 604e	250MHz	32Mb	2Gb	Now	$5,995
PowerTower Pro 225 MP	2 x 604e	225MHz	32Mb	2Gb	Now	$4,995
PowerBase 200	603e	200MHz	16Mb	1.2Gb	Now	$1,995
Umax						
S900/240	604e	240MHz	32Mb	2.1Gb	Feb	$5,795

Apple's QuickDraw 3D modelling and rendering system and costs $88. Expect a price of around £85 when *Vertigo 3D Dizzy* arrives in the UK.

NoHands Mouse

That's right: it's now possible to free your hands from having to use your mouse by connecting your Mac to foot pedals. The NoHands Mouse has two pedals: use one to move the cursor around the screen, even changing its speed as you do so, and the other to perform clicks and double-clicks.

The NoHands Mouse is useful for when you're doing intensive typing and don't want to keep grasping for your mouse to do trivial tasks; for people with disabilities; or for using with a graphics tablet set-up for producing animation. Maker Hunter Digital also claims that the mouse can reduce the risk of repetitive stress injuries.



The Artville collection will offer graphic designers specially commissioned illustration and photography on CD-ROM.

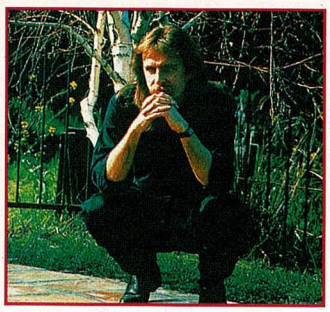
Artville

As sales of high-quality photo material on CD-ROM gather momentum, the publisher Artville is offering a distinctive range of discs using work from illustrators, fine artists and photographers. The material is ideal for professional designers and art directors working to tight budgets, but still seeking to produce something fresh and different.

Artville plans to issue regular catalogues covering 200 CDs each and it will ➤ page 20

EXPO '97
San Francisco

Power Goo sparks MetaTools revolution



Kai Krause used the Expo venue to talk about MetaTools' plans, which include radical new approaches to graphics and 3D.

Spurred by the success of its low-cost special effects package *Kai's Power Goo*, the graphics firm MetaTools is radically transforming its approach to its other products, which include 3D landscaper *Bryce* and the *Kai's Power Tools* plug-in for *Photoshop*. Spring will see the second of what the firm's head Kai Krause sees as a whole series of programs.

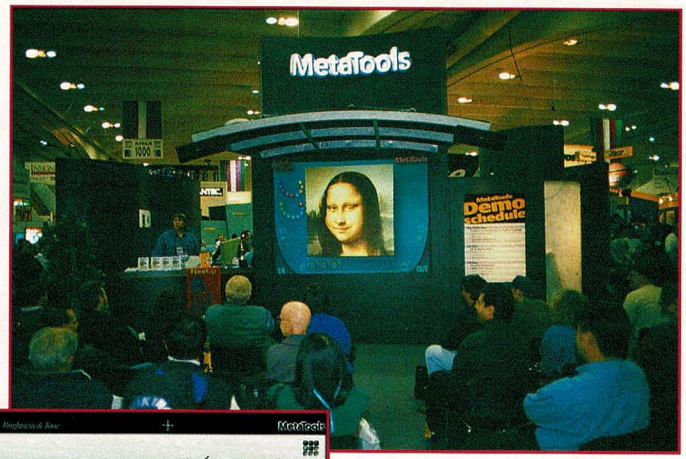
"*Goo* turned out to be a huge thing for us," Krause told his audience at a special Expo presentation. "We used to have a few hundred dealers that sold elite, special niche *Photoshop* plug-ins and so forth. We went from 300 to about 7,000 dealers – *[Goo]* is the first one that made it onto that shelf space."

Goo's success has encouraged the firm to release more new packages in a similar vein and even revamp current products to fit the new model, said Krause. As each product appears, the tools for each program will appear within any others you already have on your Mac. "The idea to have all these components that talk to each other like little Lego blocks is very appealing to me, and I call that whole thing our MetaWorld.

"*Goo* was only the first of hopefully about a dozen," said Krause. He announced plans to rework plug-in software like *Kai's Power Tools* and *Kai's Vector Effects* into self-contained programs that work within the MetaWorld system. MetaWorld programs will include tools for 2D and 3D effects, digital video and making presentations.

The second program to appear after *Goo*, though, is codenamed *Soap*. "The idea behind this is simple – *Soap* will clean your pictures," said Krause. The program, expected to cost around £45 when it appears in the spring, offers simple features using an extremely powerful set of graphics capabilities underneath. You'll be able to display a photograph where a face suffers from photo-flash red-eye, for example, and simply wipe it away. You can also wipe away facial scars or remove seams from clothing.

Instead of a coventional cursor, you can use any of a variety of realistic tools that appear dotted around the *Soap* screen.



MetaTools drew the crowds on the Expo showfloor with demonstrations of its new-look programs.

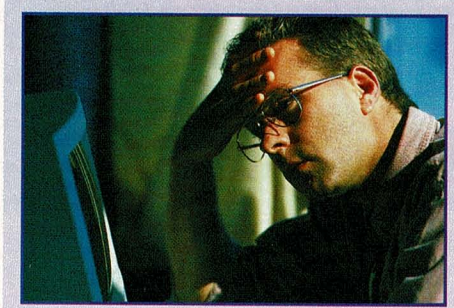
***Soap* features tools you can pick up and use to clean your pictures: that brush you see would normally be an arrow-shaped cursor.**

More from MetaTools

MetaTools seems to have a busy year ahead. The firm also recently bought Real Time Geometry, a firm working on 3D graphics technology for a wide variety of computers and game consoles, including a 3D scanning device. "What they basically have is a tiny scanner the size of a paperback book," said Krause. "So you sit down in front of it and look at the monitor, and you see your face and it goes 'click'. In three seconds it captures the picture of you as a textured photographic image map – and at the same time, a laser captures the entire 3D data structure.

"The other thing they have is a new technology in how you describe the surface structure. What's new here is that it'll do it in real time in any resolution." MetaTools will be incorporating RTG technologies in new, still-unannounced programs. ➤

Pick of Expo (continued)



Relax, there's always Stockpix: the new publisher is offering photos for all occasions on CD-ROM.

also sell illustrations over the World Wide Web when its forthcoming site is finally up and running.

Stockpix

Irish publisher Stockpix has announced its own range of high-quality photos on CD-ROM for designers. Its first ten discs and accompanying catalogue show StockPix's emphasis on well-shot material with subjects of a wide appeal – ***Families, Business, Travel*** and ***Busy People*** are among the first selection.

The photos are royalty-free for immediate use in most situations, and there's a 1,000-image CD sampler available. Contact Stockpix in Ireland on 00 353 0 66 22139 for more details.

Spreadsheet 2000

Casady and Greene's number-crunching package is the second version of the program *Let's Keep It Simple Spreadsheet. Spreadsheet 2000* offers an different way from conventional spreadsheets like *Excel* to build intelligent tables and charts for keeping tabs on your accounts or performing other complex calculations.

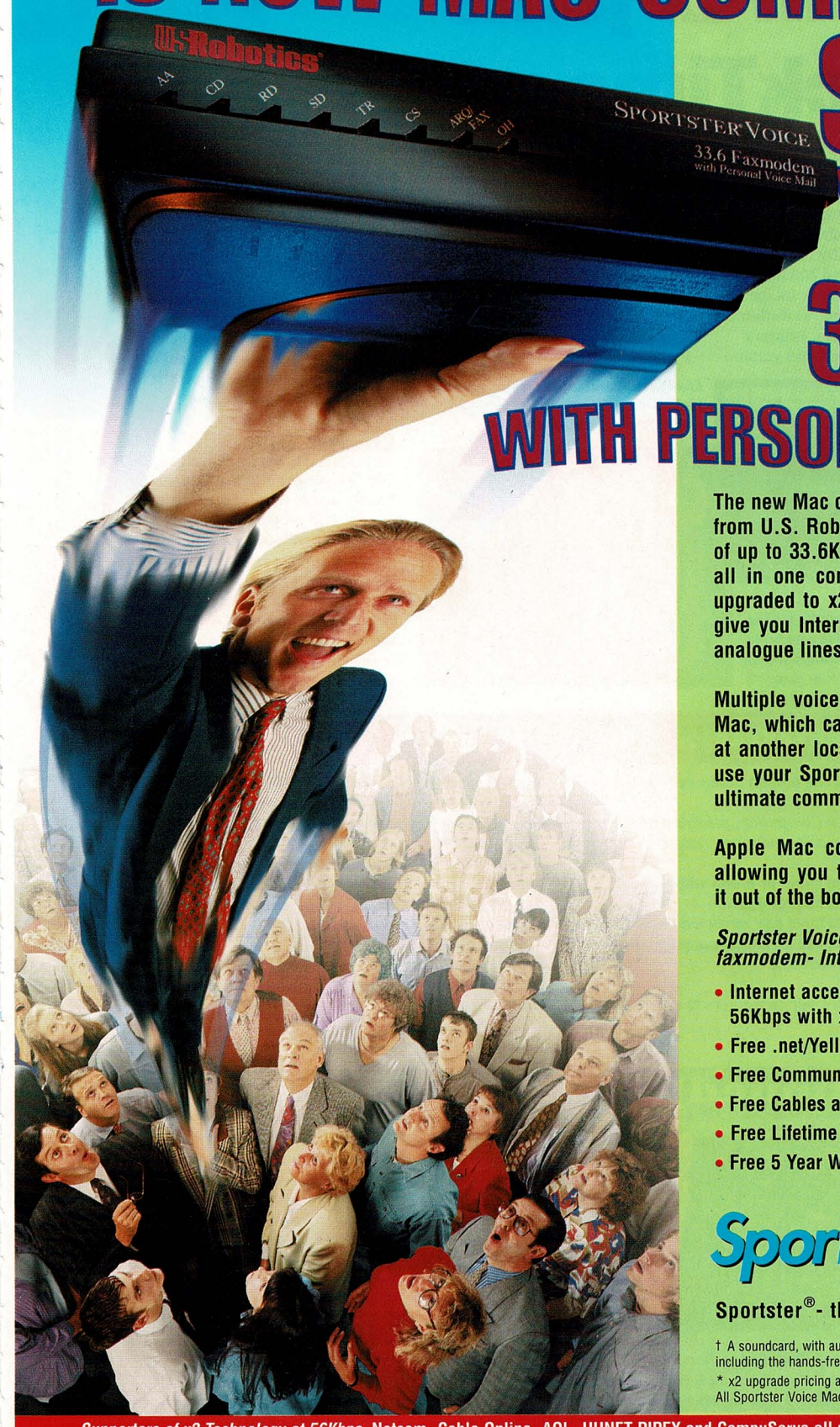
The revamped program will include 50 templates for common situations, which you can slot into your own documents. There's also a Shortcuts system for saving your most-regularly-used tasks, more powerful sorting functions, and calculations which can use dates and times.

Be Here

As more designers use virtual reality to display environments, especially within Web sites using Apple's QuickTime VR, Be Here is introducing new cameras designed ➤ page 22

THE WORLD'S No.1 MODEM IS NOW MAC COMPATIBLE- SPORTSTER VOICE 33.6 MAC

WITH PERSONAL VOICE MAIL



The new Mac compatible Sportster Voice 33.6 Mac faxmodem from U.S. Robotics provides Internet access and data speeds of up to 33.6Kbps plus E-mail, fax and voice mail facilities†- all in one compact unit. Sportster Voice Mac can also be upgraded to x2- the new technology from U.S. Robotics, to give you Internet download speeds of 56Kbps over ordinary analogue lines.*

Multiple voice mailboxes store telephone messages via your Mac, which can even be retrieved remotely- when you're out at another location. The speakerphone facility allows you to use your Sportster as a hands-free telephone- providing the ultimate communications system for your home or office.

Apple Mac compatible software and cables are included allowing you to be up and running within minutes of taking it out of the box.

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* x2 upgrade pricing and availability details are available from February 1997.
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EXPO '97
San Francisco

Macromedia adds Flash to Web tools

The fast-growing *Shockwave* family of multimedia Web products gained a new addition as Macromedia announced the debut of *Flash*. The program is designed to help you create colourful animations for your Web site, producing compact files that download over the Web quickly.

Flash may be better known as *FutureSplash Animator*, a package we reviewed in MACFORMAT 45. The software was created by FutureWave, a firm Macromedia recently bought.

Shockwave is a software system for playing multimedia productions within Web pages. You can already use Macromedia packages *Director*, *Authorware* or *FreeHand* to create the files, but *Flash* is specially geared towards making Web-based material.

SmartSketch

FutureWave's first program was *SmartSketch*, a compact all-purpose drawing program with some ingenious features and tools. *SmartSketch* (reviewed in MACFORMAT 31)is now also part of the Macromedia line-up, and the firm is to develop it further.

***FutureSplash Animator* (above) and *SmartSketch* move to Macromedia.**

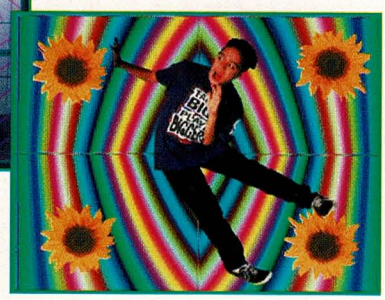
FlashPix joins QuickTime group

Apple's QuickTime system, an essential part of all Macs and many Windows-based PCs, is to incorporate the ambitious new FlashPix image format. Developed by companies including Kodak and Microsoft, FlashPix offers versatile image files that adapt to the resolution of the device using them. Printers will use a high-resolution version of the same image that would appear at low resolution on your Mac screen.

The plan behind FlashPix is to make it a standard for images. The QuickTime deal brings this aim a step closer: any program that uses QuickTime will also be able to show FlashPix images, and Apple expects QuickTime to be able to convert FlashPix images into PICTs automatically for programs that don't recognise the new format.

It also means FlashPix has the potential to become a new standard for the Web: the QuickTime plug-in for *Netscape* is already fast being accepted as the automatic choice for playing back video and sound clips within a Web page, and a future version of the plug-in could also display high-quality FlashPix images in a Web page, rather than the current low-grade GIFs.

***LivePix* (left and top) is a low-cost but high-powered program for working with your image files.**



Using the FlashPix format, *LivePix* enables you to add funky backgrounds to photos you've taken yourself.

LivePix

The first program to use FlashPix in a more active way is Live Picture's *LivePix*. The program offers powerful image manipulation facilities wrapped up in a set of simple tools. It's aimed at a home audience who find professional programs like *Photoshop*, and indeed *Live Picture*, too complicated. Look out for a review of this new program in MACFORMAT soon. ➤

Expo quotes

"We have some of the ugliest computers in the world."
Bill Goins of Power Computing, pledging that the firm will aim for smarter industrial design in 1997.

– "Do you have the same problem with piracy?"
– "Yeah, we view it as promotion."
Kai Krause of MetaTools and musician Peter Gabriel exchange perspectives on illegal copying within their respective industries.

"What I know about our customers is that they're loyal, but they're also our toughest critics."
Apple's Gil Amelio, speaking at the recent Expo. Shorter speech next time, in that case.

"When you are a $10 billion company, you cannot have the same attitude as a garage company."
Apple's Marco Landi on the long-overdue change in attitudes within Apple.

"Steve is a counsellor."
Landi on old boy Steve Jobs' new advisory role within the firm.

Pick of Expo (continued)

to make it easier to produce your VR material.

Usually you'd build a VR file by stitching together several still photographs, using software to create the illusion of there being one continuous 360-degree vista. Be Here's camera lens system can capture an entire scene at once, creating a single file ready to use with your VR software.

Coda

Web page editors have quickly evolved from primitive shareware to sophisticated but low-cost tools that hide the complexity of Web page code. *Coda* may just be the next step in the development of these editors: it enables you to create sites of full-blown multimedia. The difference is that instead of using industry standard HTML code to make the pages, *Coda* produces its pages in Java, Sun's fast-growing interactive language. Web browsers like *Netscape* are already able to use Java, so Web pages can be written entirely in this language – although it's far more complicated to use than HTML.

Coda masks the complexity behind desktop publishing tools and multimedia controls for creating graphics, sound, animation and more. *Coda* is also written in Java itself: this means it will work on any computer supporting the language, including your Mac. You'll need the forthcoming Mac OS Runtime for Java system to use *Coda*, which will appear this Spring for around $500.

Ultra-violence! *Quake* sets new standards in excitement on your Mac – coming soon.

Quake

The newest game from Id Software, the maker of hit title *Doom*, *Quake* is due in April. *Quake* extends *Doom's* trademark first-person shoot-'em-up action into full 3D: you can view your environment from any angle as you attempt to keep alive against the onslaught of freshly-designed nasties. *Quake* is one of the biggest games of the year for the Mac.

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GET ON-LINE!

If you've not yet invested in the technology that allows you to access on-line services via your Mac, you need to contact us now to find out why getting connected may be easier than you thought. With the latest range of very fast modems and easy to use software, you'll soon be... sending and receiving faxes, posting and retrieving e-mail messages, transferring and downloading files to any part of the world, viewing infinite amounts of information on the Internet, using your Mac to manage your answer phone messages and a whole lot more besides! What are you waiting for - let your Mac travel the world for you!

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  - 33.6bps Data speed, 14.4bps Fax speed
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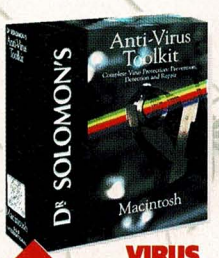

VIRUS ALERT

Internet and e-mail viruses can Kill... YOUR Mac!

Peace of mind costs just... £59

We all heard about viruses some years ago and have probably forgotten all about them. But, did you know there are more new viruses being created now than ever before (over 10,000 have been identified)? Did you also know that they are being spread more rapidly than ever across the internet and even by seemingly innocuous e-mail messages - as well as on floppies and CDs? So, if you're connected to the net, or receive e-mail on your Mac, being unprotected is inviting disaster...

Having anti virus software is more vital than ever before and it's not enough to rely on shareware programs downloaded for free or on a package you've had for ages. Why? Yesterday's anti-virus software can't detect and eradicate today's viruses - they can only guarantee detection of viruses that were known when they were written. To overcome this, Dr Solomon's team is working constantly to identify and decode the latest viruses and then incorporate the appropriate detection and eradication routines in the updates you'll receive each month or quarter after your purchase.

If you've ever lost some or all of the data from your hard drive, you'll know you can't afford to be without it. Don't take a chance, order Dr Solomon's Anti Virus Toolkit today for complete protection!

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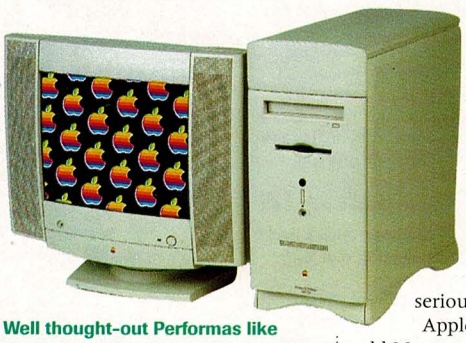
Apple loss but Europe booms

Fired up by a strong opening, Motorola is making a big noise about its Macs.

Strong sales in the UK and Europe offered some relief to Apple as the firm announced surprisingly high losses of $120 million (£72.3 million) for the three months up to Christmas 1996. The United States contributed to much of Apple's loss, with far fewer Performas going into American homes than the firm had originally expected.

Research organisation Dataquest's figures for 1996 computer sales show the point clearly: Apple's 1996 sales dipped by 30% in the United States.

Europe, though, was a different story: Apple claimed its sales had risen 50% on the previous three months. Chief Operating Officer Marco Landi announced plans for the release in the US of more potent Mac and software packages along the lines of the Home Office and the Creative Studio, admitting that Apple's choice not to launch such bundles there earlier had been a serious mistake.



Well thought-out Performas like the Creative Studio went down well in Europe – now Apple is hoping they'll do the same in the US.

Apple Europe's Jan Larsen told MACFORMAT that Mac sales in the UK had increased by over 15% in the last year. He added that AppleCentres, dealers selling only Mac-related products, had played a crucial role. There are over 1,000 AppleCentres across Europe. Recently the firm has been experimenting with what Larsen called "a kind of AppleCentre Lite" – shops selling Macs and software like the existing AppleCentres, but more visible and tailored more towards home users. Such AppleShops may be coming to the UK as the firm seeks alternatives to the sometimes indifferent service of the High Street retailer.

Mac-compatible success

Apple remains the most popular source for Macs, but many other firms now also offer Mac-compatible computers. Business seems to be booming: Motorola is already claiming pole position among these companies, based on just its first month's sales of 40,000. (Apple sells around 350,000 Macs a month worldwide, according to figures from Dataquest.)

Motorola had expected much lower sales because December was the first month its StarMax systems had been on sale, and the firm was still ramping up its manufacturing. It's now revised its plans for 1997 more optimistically.

Power Computing, the first Mac licensee, had rough patches in 1996 as it tried to keep up with a level of demand that it also hadn't anticipated. It's now claiming a position in the top 15 personal computer makers, Mac or otherwise (Apple is number four). Power is keen to keep its edge as the first firm to bring out machines with new processors as they're made, and also plans to introduce a portable Mac-compatible later in the year, despite the lack of an official Apple licence.

News in brief

New PowerPCs to lose key OS support

Motorola has cast a cloud over the long-term prospects of the forthcoming PowerPC Platform (PPCP) computer by announcing that it is abandoning its development of the operating system *Windows NT for PPC. Windows NT* is popular among the large businesses that Apple and other PPCP manufacturers are hoping will adopt the computer in numbers.

One of the main selling points of PPCP, due this summer, is its ability to run such diverse systems as the Mac OS, Windows NT, Solaris and Unix. This ability remains: there is a PPCP version of *Windows NT 4.0,* the latest version of the software to appear, and you'll certainly be able to buy computers which run the Mac OS and *Windows NT.* Firms now have to decide, though, whether to buy a machine with an important element that won't evolve unless another firm decides to take on the responsibilty of development.

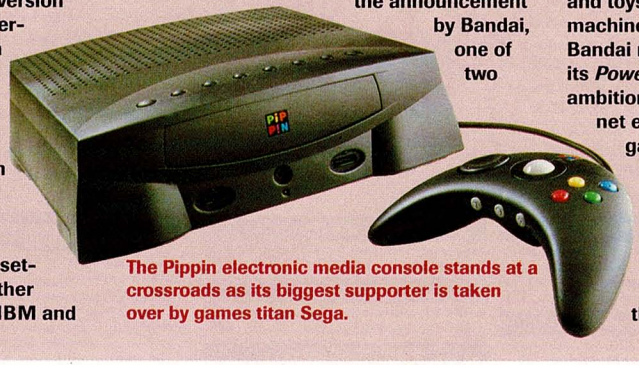
Extra support for Mac makers

It's going to be easier to buy the Mac set-up you want when you want it, as another company is to join the likes of Apple, IBM and Motorola in making Mac components. Acer is to supply motherboards and other parts to Apple and other firms making Mac OS computers, although it hasn't announced any plans to sell machines to the public itself.

Acer is already hugely successful at making PCs: it's the world's fifth biggest PC manufacturer, and its own brand is a regular fixture in the world top ten.

Confusion over Pippin future

The future of Apple's Pippin multimedia and Internet console was thrown into doubt after the announcement by Bandai, one of two firms selling Pippin consoles, that it is to merge with video game giant Sega. You'll still be able to buy one in the UK, though: Katz Media plans to bring Pippin into the UK in the spring of this year (see last issue's News).



The Pippin electronic media console stands at a crossroads as its biggest supporter is taken over by games titan Sega.

Pippin is the design for a console which plugs into your TV, can connect to the Internet and can also play multimedia and games CD-ROMs. It aims to combine simplicity and versatility, and CDs written for Pippin will also work on PowerMacs.

Both Sega and Bandai have found the going tough in the increasingly competitive games and toys market, with Sega's Saturn games machine losing out to Sony's PlayStation and Bandai meeting with little success outside of its *Power Rangers* toys. Sega has long held ambitions to develop a broad range of Internet entertainment around a core of on-line games, so Pippin could prove an asset – but Sega of course has computer technology of its own. The device's future – at least with the new firm – now rests on the next few months, as Sega and Bandai match up their assets and decide how to approach the entertainment market in the future.

Mac price cuts

Look out for some great Mac bargains over the next few weeks. Apple has cut prices on most existing PowerMacs yet again, with estimated street figures dropping by at least 20%.

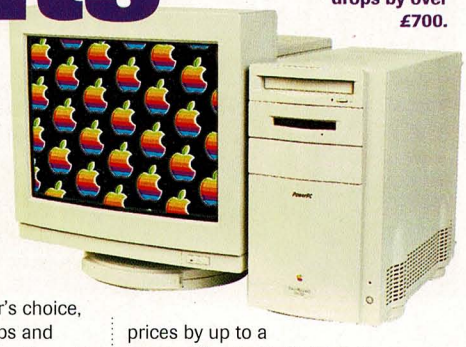
The move, which sees the PowerMacs making way for new models coming this month, is likely to trigger price cuts from other manufacturers in the UK, including Power Computing and Umax.

It's a great time to buy a Mac, as Apple slashes its prices, with others sure to follow suit.

Aimed squarely at businesses, the 7600 and the 8200 come with a copy of productivity suite *Microsoft Office*. Equipped with plenty of expansion slots, the 7600 is ideal for upgrading later.

The 8500 is the designer's choice, offering powerful 604e chips and large hard drives for multimedia and video development. It's also available with 32Mb of RAM for £2,331.

Apple is also reducing its monitor prices by up to a quarter. The firm's Multiple Scan and AppleVision screens offer high-quality displays suitable for professional graphics work.



The price of the PowerMac 8500 graphics powerhouse drops by over £700.

Apple's new Mac prices

Prices include VAT. None of the models comes with a monitor or keyboard, but each has an eight-speed CD-ROM drive and a Level 2 cache for improved speed.

Model	Processor	Speed	RAM	HD	Extras	Was	Now
PowerMac 8500/180	604e	180MHz	16Mb	2Gb	–	£3,019	£2,261
PowerMac 7600/132	604e	132MHz	16Mb	1.2Gb	*MS Office*	£2,149	£1,651
PowerMac 8200/120	601	120MHz	16Mb	1.2Gb	*MS Office*	£1,597	£1,280

Monitors

Figures are estimated street prices and include VAT.

Multiple Scan 1705	£513
AppleVision 1710	£638
AppleVision 1710AV	£707
Multiple Scan 20	£1,421

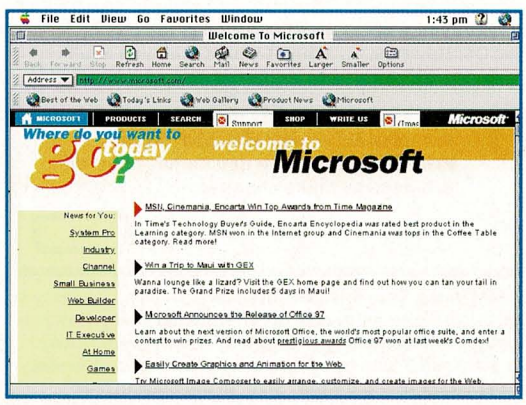
Microsoft boosts its Mac activities

Conventional wisdom has it that Microsoft is Apple's arch-enemy because of their operating system rivalry, but Microsoft is actually the biggest software publisher on the Mac outside of Apple-owned Claris. Now the firm is expanding its Mac efforts with its first-ever Mac-only development team for flagship project *Office 97;* and it has announced plans for more Mac software this year.

Office 97 is inevitably Microsoft's biggest release of the year. Traditionally the office suite of word processor, spreadsheet and presentation package has been written for Mac and PC at the same time, with the least possible program code being written specially for the Mac version. *Office 4.2* attracted criticism from users and reviewers, though, because of its "PC-ness" – not feeling like a Mac program – along with its bugs and general unresponsiveness during use.

Microsoft has now abandoned its old approach: the firm says that *Office 97* will be produced by one of the largest groups of Mac programmers outside Apple itself.

The new group's head Ben Waldman said *Office 97* would be faster and more Mac-like than its predecessor, using Apple technologies like Drag-and-Drop to make your use of the suite more productive.



Microsoft's free *Internet Explorer* adds Java to display more compelling Web pages.

He is also planning to review the set of features planned, to see what can be added specifically for the Mac. The group will later work on other programs, including a calendar and scheduling program and *Exchange* e-mail software.

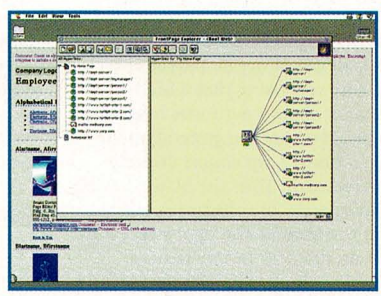
Microsoft on the Net

Microsoft's Internet division is also very busy creating Mac software, a surefire consequence of the large numbers of Mac owners now using the Net every day.

The final version of *Internet Explorer 3.0* is now available. This free Web browser is *Netscape Navigator's* biggest rival, and includes the ability to run Java applets within a Web page. You can download *Explorer* from Microsoft's Web site at **http://www.microsoft.com/**

FrontPage is Microsoft's entry into the hard-fought battle of Web page authoring tools. *FrontPage* is a full-scale Web site management tool, helping you both to design your Web pages and run your site efficiently once your pages are actually on the Web.

Microsoft also plan to release the *ActiveX Part Adapter,* a free program which enables its ActiveX software components to work within Apple's similar OpenDoc system on the Mac. Both OpenDoc and ActiveX can place small programs of all types within a single document, One Microsoft-derived example is *Text Chat,* which enables you to join in live group discussions on the Net. Both items are due to appear on Microsoft's Web site. **MF**



***Front Page* enables you not only to create and edit HTML-based Web pages, but also offers features to manage them.**

Plenty of exciting news from San Francisco's recent Expo, then... So what do you make of it all? Write and let us know your feelings on anything Mac-related, and if your letter is published here you'll win your very own MACFORMAT binder. (Of course, if it's all too much to take in, with new operating systems and what not, and you're not up to letter-writing but fancy a binder anyway, you can turn to page 144 and order one. But then you'll be depriving us all of your insights...)

Got something to say? Share your views and win a MACFORMAT binder. Write to: Alex Summersby, AppleTalk, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

PC World: home truths

I read your Apple Talk page in MACFORMAT 45, specifically the letters about problems buying Macs in PC World, with great interest as I am an employee of PC World. As such, I must, in the strongest terms, echo the writers' sentiments.

To PC World the Apple Mac is a mere peripheral to be sold when requested and to be marginalised from its core PC products. However, in defence of my employer, it is hardly surprising that a high-street retailer should not focus heavily on a product that the general public in this country are almost entirely unaware of. Thus the blame for the pitiful array of software available for the Mac on the high street must lie on the desk of the head of Apple, who has in his quest for the ideal machine neglected to inform the masses about how good his present machine is.

The result is that we on the sales floor are constantly being told, by our customers, "We need *Windows 95*," "You can't get software for a Mac," "Apple is in a financial crisis," and, most annoyingly of all, "Buying a Mac is like buying a Betamax when everyone knows, and is buying, VHS"!

Don't the people at Apple realise that at street level their company is a non-entity and that the best OS in the world won't help if the vast majority of the computer buyers have never heard of anything other than *Windows 95?* I commend Apple for the best OS and hardware but when it comes to marketing and mass-market advertising, I am sorry but I have to say the company is a philistine. And don't take my word for it, go down the high street or into a PC World and try to find a reason why an uninitiated person should even contemplate buying an Apple Mac.

Name and address supplied

Next issue: the head of Apple tells us what he thinks of PC World. Possibly.

Intel in lies?

I've been noticing something about Intel's marketing strategy. I can't remember an advert that actually advertises the Pentium chip on its own virtues – only what you can do with it. "Run amazing CD-ROM titles and connect to the Internet!" Oh, will a Pentium allow me to do *that?* I must have one!

That raises the universal point: *every* PC company advertises on the assumption that their potential customers know nothing. It's actually quite true, for the only people who are going to be influenced by what they say are those who hold no preconceptions; to whom megahertz and data buses can only refer to improved car rental and digitised public transport.

That's where Apple falls down too. What's the use of trying to explain the superiority of the Mac to harassed parents looking for a computer for their kids, or to office workers needing something to continue their work with at home? Sure, they'll reap the benefits of a Mac, but they don't know enough to understand this beforehand, or even to realise their mistake when they lose three months' work to the backwardness of *Windows*.

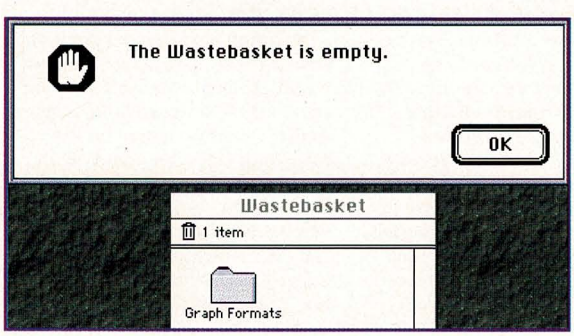
The problem is that, while Intel is lying its ugly head off about what you can't do without a Pentium chip (disregarding how easy you'll find connecting your nice new PC to the Net), Apple's honest claims about the beauty of the Mac go unnoticed. Part of it is that Intel has nothing to shout about (that'll mean anything to anyone), whereas Apple enjoys the synonymity of the Mac and the Mac OS. However, Apple needs to stop suggesting "Excuse me, don't you think a Mac would be so much more wonderful than a PC?" and start yelling "Open your eyes, you misguided PC slaves, and realise why your life's been a misery since you got that thing!"

David Aitken
Linlithgow, West Lothian

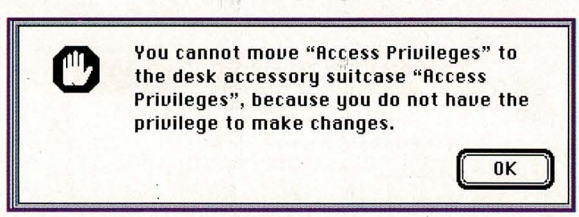
That's what we like: a nice balanced appraisal of the merits of Windows. Why don't people write letters like they used to, all about nifty keystroke shortcuts they've found and stuff like that?

Kids are not stupid

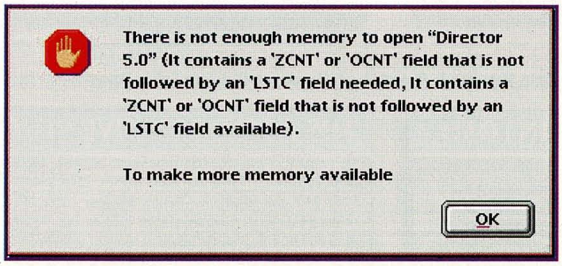
As a reply to this letter from Alan Stewart *[in MACFORMAT 45, criticising our favourable review of the Tomy ComfyKeyboard in the previous issue on the grounds that "kids can use real keyboards"]*, I completely agree. If you can't use a Mac keyboard, don't use a Mac. I am 11, and I know more about computers than my dad and mum put together. I can program Java, HyperTalk, and C++. I run a Web Publishing service. I regularly use graphics packages like *Photoshop* and *Sculpt 3D* (which is cool!) – or at least try to use them (we have an LCIII). If you have to use a Comfy-Keyboard then you don't appreciate Mac tech, and you can watch TV or use a PC! If I had the money for a stamp I would send you a full-



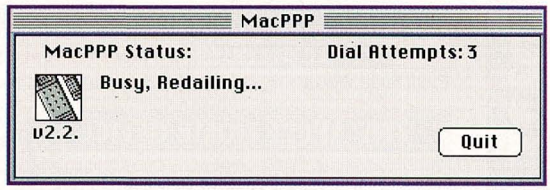
Silly Things Your Mac Says, number 470 in a series, from Douglas Carter via FutureNet. "The offending flush-proof folder," he says, "refused to be moved or renamed, but mysteriously vanished of its own accord when a couple of files were thrown into the Wastebasket."


You cannot move "Access Privileges" to the desk accessory suitcase "Access Privileges", because you do not have the privilege to make changes.
OK

Another Silly Thing, from Michael Lovelace of Deakin University in Australia, though it probably makes perfect sense really. Has your Mac given you a Silly Message? Grab it by hitting [command] [shift] 3 and send it in to us by mail or by e-mail to macformat @futurenet.co.uk with the word "Silly" in the Subject line.


There is not enough memory to open "Director 5.0" (It contains a 'ZCNT' or 'OCNT' field that is not followed by an 'LSTC' field needed, It contains a 'ZCNT' or 'OCNT' field that is not followed by an 'LSTC' field available).
To make more memory available
OK

Error messages from applications obviously reflect their character – this one from *Director 5* blathers on so long that it doesn't even leave room for the helpful bit... It was sent in by Patrick Bloom, who is living and working in Rotterdam.



Some other applications, meanwhile, apparently don't feel they have to bother with small details like correct spelling... The picture comes from Lydia Dolan, via FutureNet.

colour, 3D-pictures letter saying this but I'm broke. I would like to emphasise: kids are not thick, and kids' keyboards are stupid.
Ked Shayer
via FutureNet

*I would like to re-emphasise: the Comfy-Keyboard is for fun, and it's for **very young** kids, from one-year-olds upwards. My four-year-old loves it, but hasn't quite mastered Java, C or HyperTalk yet. Hyped-up talking, maybe...*

Pirates off the port bow

After reading a report in a magazine about software piracy in Europe and reading that the three main areas are in Paris, the East End of London and the Barrowlands in Glasgow, I felt I should investigate just what they had in Glasgow and the scale of this.

In the Barrowlands I was shocked to discover the amount of software for sale. For example, I could buy *Macromedia Director, Adobe Photoshop, ClarisWorks 4, Marathon Infinity* and a horde of other titles on one CD all for only £20! But this was nothing compared with the stuff you could get for the PC, PlayStation and other machines. To say that I was tempted would be the understatement of the century.

You will be delighted to hear that my good nature and law-abiding personality prevailed. But the amount of PC software being sold was unbelievable. It got me thinking that the people buying these CDs were really just stabbing themselves in the back. What they are doing is reducing the sales of software and giving the software companies less money to make better upgrades and new software.

One last thing: it is every Mac owner's responsibility – no, *duty* – to purchase the *Marathon* trilogy and to unquestionably support Bungie no matter what.
C Jones
(A fanatical Bungie supporter)
Linlithgow, West Lothian

"A fanatical Bungie supporter"? I'd never have guessed. Anyone going to attempt to justify piracy? And just to anticipate one common rationalisation: no, the size of Microsoft's profits doesn't mean you're entitled to rip off every programmer or software company.

Surprise!

I recently purchased a PowerBook 190, and of course Apple chose not to include the installed software on disks for me. But they included a back-up program, which helpfully tells me how many disks and how much time I will need. Halfway through the 35-disk process, the program rejects a disk, saying that it needs to be an 800K disk. (I naturally had been using 1.4Mb disks, which the program accepted, and presumably needed.)

To you I ask: Why would the program *need* an 800K disc? Could it not use a larger capacity disk and, if it didn't need the space, just leave it blank?

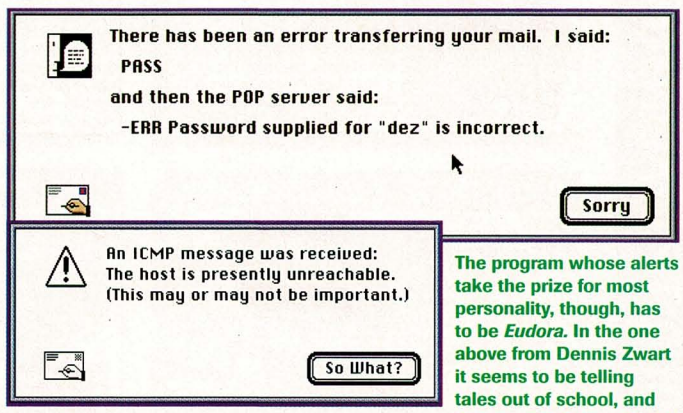
And to Apple I ask: Why not tell me beforehand that I will need a *combination* of the two types of disks, especially since one of them is not particularly common? Not to mention that the program did not tell me *how many* 800K disks I would have to supply.
Fredric Schnabel
Freiburg, Germany

*You can of course make your Mac **think** that a high-density (1.4Mb) floppy disk is an 800K disk, simply by sticking a piece of tape over the extra hole in the top of the disk (not the one with the tab you can move to write-protect the disk – the other one). The catch is, it will want to re-initialise that disk, but probably won't be able to do so with the back-up program hogging the processor. But yes, the point is, why didn't they warn you, and why on earth **would** it need an 800K disk?*

Work faster

In his letter in MACFORMAT 45, John Rainsford says that a file of 10Mb to 20Mb can run up the phone bill £15–20. Assuming a 20Mb file at 3p a minute peak rate, that's over eight hours phone time – that is, only about 8bps into his computer. I know the Internet is a bit crowded but I think he should review either his configuration or ISP, or both.
PS. Here are some of the things created on a Mac for the Wintel world: the *Win95* logo was created with *FreeHand* on a Macintosh; the graphics for Microsoft Network; *Windows 95* packaging; *Windows* and *Windows Sources* magazines; and best of all, the weekly Microsoft internal newsletter *MicroNews*.
Donald Freake
via FutureNet

Hey, as we report in this issue's News, Microsoft is a huge supporter of the Mac. We all knew that – after all, Windows 95 is the sincerest form of flattery. **MF**


There has been an error transferring your mail. I said:
PASS
and then the POP server said:
-ERR Password supplied for "dez" is incorrect.
Sorry
An ICMP message was received:
The host is presently unreachable.
(This may or may not be important.)
So What?

The program whose alerts take the prize for most personality, though, has to be *Eudora*. In the one above from Dennis Zwart it seems to be telling tales out of school, and the one at left from David Ordoubadian, of Umea in Sweden, has *attitude!*

What would you like to see in System 8?

■ **The Apple menu is a wonderful idea, *writes **Paul Scullion** via FutureNet*, which makes using the Mac so easy, but it is hassle putting things into it, creating aliases, hunting through the System Folder, etc. Why not create a drag-and-drop menu, so you can simply drag the application onto the Apple and it will create an alias and put it into the menu? It would improve Apple's original idea – a good idea, which we can see copied in *Windows 95*, only they called it "Start" and included an option in it to stop the machine. Think you missed something there, chaps.**

No idea what you mean about Windows... But for the kind of drag-and-drop functionality you describe, have a look at the Launcher. We included some tips last issue for getting the best from it – if you missed that issue, turn to page 144 for details of our back issues service.

■ **I also have an addition for System 8, *writes **Michael Lovelace** in a note accompanying his Silly Message:* when you choose **New Folder** from the **File** menu, a dialogue box should pop up so that you can type in the folder name that you want, with "Untitled Folder" being the default. This eliminates the tiresome task of selecting the folder name every time you create a new folder and typing in the new name.**

"Untitled Folder" was certainly an improvement over "Empty Folder", which was the default when you created a folder in System 6 and stayed the same even after you had put something in it. They'll get it right eventually.

■ ***What would you like to see in System 8 – or in Rhapsody, or Melody, or whatever the next one's code name is? (You don't suppose the Apple OS engineers are fans of Gerry Anderson's Captain Scarlet, do you? Just an idle thought...) Send your ideas to "System 8 Wish List" at the address opposite!***

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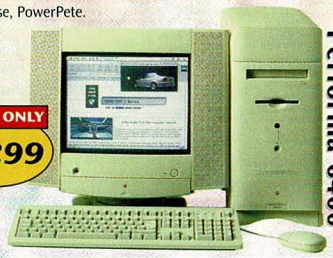
SOFTWARE - Mac OS 7.5.3, Best of European Soccer, Apple Telecom 3.0, Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa Clickart, Thinkin' Things 3, Sammy's Science House, PowerPete.



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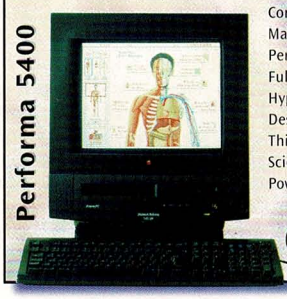
SOFTWARE - Mac OS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, 120 Letters, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Internet Connection Kit, MacLink Plus, Performa Clickart, Full Throttle, HyperCard Player, Descent, Thinkin' Things 3, Sammy's Science House, PowerPete.



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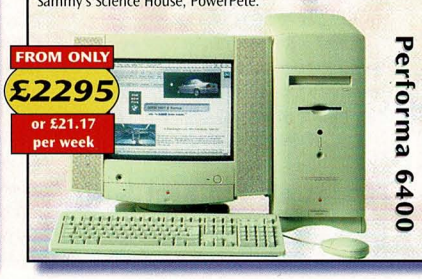
SOFTWARE - Mac OS 7.5.3, Avid Cinema, Adobe Photodeluxe, PowerGoo, Cubasis AV, Adobe PageMill, Dabbler, Best of European Soccer, Apple Telecom 3.0, Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa Clickart, Thinkin' Things 3, Sammy's Science House, PowerPete.



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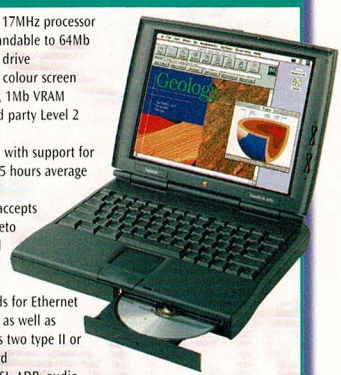

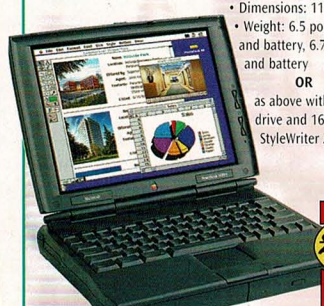

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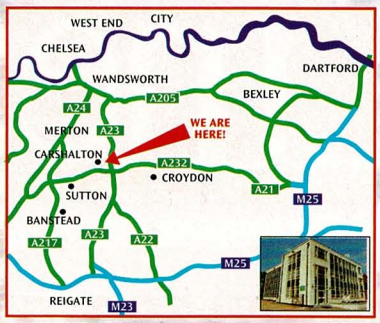

Why not call into our showroom and choose from a great selection of hardware, software and accessories all at incredibly low prices!! Close to central London with ample parking

We are only 15 miles from Central London, 7 miles from junc. 8 on M25, 25 minutes by train from Victoria Station and 5 minutes walk from Carshalton Station.

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RUNNER UP 1991,1995, 1996

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Quality scanning at reasonable prices.

- 24-bit single-pass flatbed
- Quick scanning speed
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- ScanWizard software
- SCSI-2 compatibility, with 25-pin and 50-pin ports
- Distinctive daylight scan technology
- MicroFrontier's Color It!
- OCR software from Caere

ScanMaker E3 **£245**

ScanMaker E6 **£349**

Great scanning quality at a low, low price! The ScanMaker E3 heralds the next wave of low-priced, more economical scanners. It's the perfect solution for home or small business DTP! If you don't own a copy of Photoshop, you can buy a full version with these scanners for only £149.00, or the LE version with no colour separation capabilities for only £45.00. You can alos add a transparency adaptor for only £279.00.

For higher quality publishing, the ScanMaker E6 delivers even better results - 30 bit colour at 600 by 1200 true resolution, 4800 with interpolation.

SiliconGraphics Computer Systems O2

O2 Photoshop Workstation

Adobe Systems has worked closely with long-time partner Silicon Graphics to develop a high-performance set of Photoshop plug-ins that utilise the new O2 desktop workstation's special image processing hardware to accelerate many Photoshop functions. Known as the Adobe Photoshop Performance Package, the plug-ins use the Silicon Graphics O2 image processing hardware to help perform the required operations many times faster than the main CPU -including rotating, resizing, blurring, sharpening, and colour space conversion. Which means the performance of accelerated operations of Adobe Photoshop on Silicon Graphics workstations is two to three times faster than on the currently available Apple PowerMac 9500, tested with the Adaptive Solutions Powershop accelerator card installed.

- O2 Workstation,
- 180 Mhz R5000PC
- 128MB Memory
- 2GB System Disk
- 17" Monitor
- Photoshop
- includes 10BaseT/ 100BaseTX ethernet as standard

FROM **£6795**

or £61.15 per week - call for more details

The O2 desktop workstation is the innovative system that combines Silicon Graphics performance with the power of a Web-integrated user environment. O2 gives you the industry-leading CPU and graphics performance you need plus breakthrough video and imaging features you never expected to have, especially at such an affordable price. With this combination of performance and outstanding Web capabilities, you'll accomplish more on the desktop than you ever imagined possible.

The O2 comes standard with stunning 3D graphics, powerful image processing, and real-time video processing far beyond any other machine available in its class. These features make O2 the ideal workstation for Digital Imaging, Multimedia, post-production, Web site creation, and games development. Standard compression hardware and software transforms any user into a video editor, while providing the quality that video professionals demand.

O2 is the first system to provide bundled professional digital media capabilities and Web authoring tools. With the Web integrated throughout the interface, users communicate their work easier than ever before on company intranets and the Internet.

UMAX *100% Macintosh OS Compatible* UMAX

ONLY **£1299**

free software: ClarisWorks and Hard Disk Toolkit

Apus 3000/200

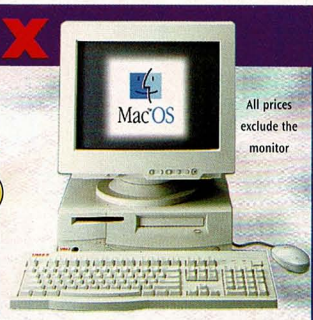
- Power PC 603e at 200Mhz
- 16Mb expandable to 144Mb
- 1Mb VRAM-on 3D video card
- 256K Level 2 cache,
- No on-board ethernet
- 1.2Gb IDE Drive
- 8 * CD ROM drive
- Keyboard & mouse
- 3 PCI slots
- Upgradable CPU socket

Apus 2000/160

- Power PC 603e at 160 Megahertz
- 16Mb RAM expandable to 144Mb
- 1Mb VRAM-built in video
- 256K Level 2 cache,
- No on-board ethernet
- 1.2Gb IDE Drive
- 8 x CD ROM drive
- Keyboard & mouse
- 2 PCI slots
- Upgradable CPU socket

ONLY **£849**

free software: ClarisWorks and Hard Disk Toolkit



All prices exclude the monitor

StarMax *100% Macintosh OS Compatible* StarMax

MINITOWER

4000/200 **£2599** or £23.39 per week

StarMax 4000/200

- Power PC 604e at 200Mhz
- 32Mb expandable to 160Mb
- 256K Level 2 cache
- 2Mb DRAM up to 4Mb
- SVGA monitor port
- 2.5Gb SCSI Drive
- 8 x CD ROM drive
- Mouse and keyboard
- Optional Ethernet
- 5 PCI slots, 5 drive bays
- 16 bit stereo
- Five year limited warranty

Introducing Motorola's StarMax family of personal computers - Mac OS compatible systems with great price performance and quality. State of the art motherboard design, the user friendly Mac OS, speedy hard drive and CD drive and the lightning fast Power PC 604 makes this a graphics and publishing thoroughbred.

MOTOROLA Computer Group

PowerPC StarMax

StarMax 4000/160 or 200

- Power PC 604e at 160 or 200Mhz
- 16Mb expandable to 160Mb
- 256K Level 2 cache
- 2Mb DRAM up to 4Mb
- SVGA monitor port
- 1.2Gb SCSI Drive
- 8 x CD ROM drive
- Mouse and keyboard
- Optional Ethernet
- 3 PCI slots
- 16 bit stereo
- Five year limited warranty

DESKTOP

4000/160 **£2099** or £19.36 per week

4000/200 **£2399** or £21.13 per week

100% Mac OS compatible!

All prices exclude the monitor but include a keyboard

These prices are subject to change, please call

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Customer Care:	0181 401 1118
Accounts Dept:	0181 401 1113
Corporate Sales:	0181 288 6800
Education Sales:	0181 288 6801

Kodak Digital Cameras

DC20

The DC20 is so simple to use - a real point-and -shoot camera. Automatic exposure and a focus-free lens ensure that there are no complicated decisions to make when preserving those special occasions. Everything you need is included, from hardware to software. Even cables and batteries. So you can get started right away. Instant capture and downloading let you see your pictures on screen almost immediately - so your computer is now your very own digital darkroom.

DC50

Specially designed so it's light-weight, easy to hold and carry, the DC50 is truly point-and-shoot. Active infrared sensors enable autofocusing, a 3x zoom lens lets you compose the scene for best effect; and has a close-up mode, whilst the built-in flash has a powerful 4.27m (14 feet) range which fires automatically when needed. However, camera controls let you take command - to override autoflash, adjust exposure, activate self-timer and delete pictures. Best of all, the DC50 uses a PCMCIA-ATA Type I or II card for image storage and easy picture transfer.

MEMORY

NON-POWER ERMAC

4Mb SIMMS 72pin	from £15.00
8Mb SIMMS 72pin	from £25.00
16Mb SIMMS 72pin	from £59.00
32Mb SIMMS 72pin	from £109.00
8Mb DIMMS 70ns	from £35.00
16Mb DIMMS 70ns	from £55.00
32Mb DIMMS 70ns	from £115.00
64Mb DIMMS 70ns	from £235.00
PowerBook RAM	please call

LIFETIME WARRANTY!!!

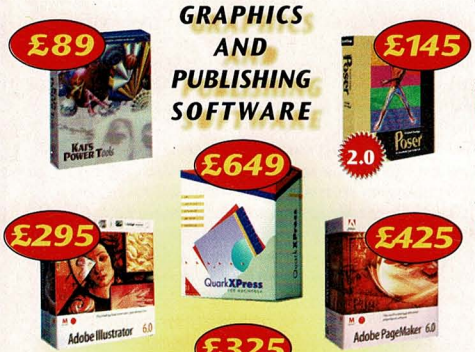
WACOM

Best pressure sensitive technology

Wacom graphic tablets provide artists, illustrators and design professionals the ultimate way to illustrate, paint or manipulate imagery on a computer. The cordless, battery-less and pressure-sensitive Erasing UltraPen included with every tablet is superior in weight, size and balance, providing the most sensitive and responsive feel and control.

Free Macromedia Graphics Studio!!! WHILE STOCKS LAST!!

GRAPHICS AND PUBLISHING SOFTWARE



WORD PROCESSING

WRD5	Microsoft Word 6.0 (market leading WP)	£249.00
NSWR	Nisus Writer 5 (multiple languages capability)	£99.00
THDR	SpellCatcher (spellchecker, works in all applications)	£45.00
WDP3	WordPerfect 3.51 (trade-in from any other word processor)	£65.00

DATABASES

4DFR	4D First (powerful and fully relational starter database)	£95.00
ACTA	ACT! 2.5 (excellent contact management)	£149.00
CORG	Claris Organiser 2 (full featured new database)	£65.00
FLMR	FileMaker Pro 3.0 (now with relational features)	£139.00
INFG	InfoGenie (info organiser, supercedes QuickDex)	£45.00
NOWB	Now Up-To-Date 3.6 & Now Contact 3.6 Bundle	£49.00

BUSINESS

ASTD	Astound 2.0 (powerful presentation package)	£159.00
CLWR	ClarisWorks 4.0 (market leading integrated package)	£89.00
DLTG	Deltagraph Pro v.4 (best graph and chart program)	£99.00
EXCL	Microsoft Excel 5.0 (market leader, great features)	£249.00
UGMSF	Microsoft Office 4.2 (Word, Excel, PowerPoint) cross trade	£185.00
WRKS	Microsoft Works 4.0 (WP, DB, Comms, Draw, SSheet)	£85.00
MCMY	MacMoney 4 UK (home accounts/budgeting package)	£65.00
MYOB	MYOB 6.0 (integrated single user business accounts)	£145.00
PERS	Persuasion 4.0 (high end presentations with outliner)	£195.00
PWPT	PowerPoint 4.0 (powerful, intuitive, easy inteface)	£265.00
SINQ	Route 66 CD ROM (road routefinder, includes UK map)	£45.00

GRAPHICS

PHSPB	Adobe Collection 2 (P.shop 4, Illust. 6, Dimen. 2, ScrnReady)	£499.00
CNVS	Canvas 5.0 (long awaited new version)	£345.00
CLDW	ClarisDraw (powerful, easy to use draw package)	£109.00
UGCRM	CorelDraw 6.0 (trade in from any graphics package)	£99.00
ADIM	Dimensions (Adobe's 3D extension for Illustrator)	£99.00
DBLR	Dabbler 2.0 (great beginners paint program)	£49.00
PSER	Fractal Design Poser v. 2 (create human figures)	£125.00
FRND	Freehand 7.0 (professional PostScript drawing & text)	£299.00
MMSF	Fhand Graphics Studio 7.0 (Fhand 7, X3D, Fonto, X-Res)	£445.00
UGFNB	Fhand Graphics Studio 7.0 (upgrade from Freehand 5.5)	£159.00
INFD	Infini-D 3.1 (leading 3D modelling & rendering tool)	£349.00
ILST	Illustrator 6.0 (pro PostScript drawing, text & layout)	£295.00
KPTG	KPT Goo & KPT Actions (limited period only)	£39.00
KPTK	Kai's Power Tools 3.0 (amazing filters for Photoshop)	£89.00
KPTV	KPT Vector Effects (Illustrator/FreeHand FX Plug-Ins)	£85.00
KPTC	KPT Convolver (adds power and ease to Photoshop)	£85.00
KPTD	KPT Bryce 2.0 (3D Skies and landscapes)	£119.00
MIMx	Maps in Minutes (wide range in Illustrator or FreeHand) from	£75.00
MCAD	MiniCad 6.0 (native professional 3D design & analysis)	£495.00
RYDS	Ray Dream Studio (3D design, modelling, animation)	£199.00
PHOD	PhotoDeluxe (cut-down PhotoShop for non-professionals)	£79.00
PHSP	PhotoShop 4.0 (special offer price - while stocks last!)	£379.00
PNTR	Painter 4.0 (the premiere painting program)	£245.00
TRBC	TurboCAD 2D/3D (budget but powerful CAD package)	£105.00

DESKTOP PUBLISHING

ACRBM	Adobe Acrobat 3.0 (paperless publishing)	£155 .00
ATMC	ATM Deluxe 4 (manages and smooths screen/printer fonts)	£49.00
CAIO	Click Art (25000 clip art images)	£25.00
CBGB	Corel Gallery II (15000 clip art images)	£49.00
FNTG	Fontographer 4.1 (best professional font creator)	£299.00
PMKR	PageMaker 6.5 (power and ease of use)	£399.00
QKXZ	Quark Xpress 3.32	£649.00
QKxx	Quark Xtensions (we carry a wide range)	please call
UNIQ	Uniqorn (create Java content easily)	£499.00

PRINTERS

ECS5	Epson Stylus Colour 500 (brilliant quality colour inkjet)	£219.00
ECSH	Epson Stylus XL A3 (A3 colour inkjet, non PostScript)	£895.00
HP34	HP DeskJet 340 (portable colour inkjet)	£179.00
HP60	HP DeskWriter 600 (superb inkjet, Appletalk)	£15 9.00
HP66	HP DeskWriter 660c (colour and mono in one)	£215.00
HP85	HP DeskJet 850c (higher speed, 600dpi mono, 300 clr)	£335.00
PWPR	PowerPrint (driver and cable for non-Apple printers)	£79.00
STYS	StyleScript (print PostScript to StyleWriters)	£79.00

MONITORS

S21X	Radius PrecisionView 21	£1495.00
SN15B	Sony 15" Trinitron Monitor CPD 15SF1	£335.00
SN17B	Sony 17" Trinitron Monitor CPD 17SF2	£565.00
DP17T	Mitsubishi DiamondPro 17" 67TXV	£489.00
DP20	Mitsubishi DiamondPro 20" TX	£995.00
DP21	Mitsubishi DiamondPro 21" 91 TXM	£1075.00

SCANNING

AFSS	Agfa SnapScan (300 x600dpi, 24 bit colour)	£275.00
AFST	Agfa StudioStar (600 x1200dpi, 30 bit colou)	£645.00
COOL	Nikon CoolScan II (35mm slide scanner)	£895.00
UVSA	Umax Vista S6 (600dpi)	£269.00
UMPLP	Umax PowerLook II Pro WITH £300 TRADE IN OFFER !!!!	£1545.00
OMPP	OmniPage Pro 7.0 (OCR directly into applications)	£365.00
PPVX	PaperPort VX (greyscale desktop OCR and scanning)	£245.00

DIGITAL CAMERAS

FDSA	Fuji DS7 (MacUser Best buy winner)	£499.00
KD25	Kodak DC25 Digital Camera (point & click, auto exposure)	£329.00
KD50	Kodak DC50 Digital Camera (autofocusing, 3 x zoom)	£625.00

COMMUNICATIONS

MROL	Motorola 3400 (MacUser Best Buy 28.8 baud)	£99.00
SPR5	US Robotics Mac Voice/Fax/Modem 33.6	£155.00
TLPP	TelePort Internet Edition(33.6 modem from Global Village)	£125.00

NETWORKING

ANET	LocalTalk (AppleTalk) connector kits	£15.00
ASDBA	Netdoubler (increase network speed)	from £40.00
FTNP	PhoneNet connector kits	£12.00
FEHD	EtherLan Hub 5 (5 port Ethernet 10baseT Hub)	£65.00
FAIR	Farallon AirDock (Infra Red LocalTalk connector)	£69.00
QKML	QuickMail 3.6 10 User (powerful, flexible E-Mail)	£349.00
ASPA	AsantePrint (Ethernet to AppleTalk printer router)	£249.00

MULTIMEDIA

MDRT	MacroMedia Director 5.0 (key multimedia tool)	£699.00
CLIW	Scitex ClickWorks (multimedia made easier)	£545.00
PRMR	Premiere 4.2 (Adobe's brilliant QuickTime editor)	£399.00
VIDD	Video Director 2.0 (edit your home videotapes)	£85.00

DAYSTAR DIGITAL

TURN YOUR MACHINE INTO A MULTI-PROCESSING MONSTER!

DayStar's nPOWER upgrades deliver the world's fastest performance for dual processing in the Mac OS. Dual 180 or 200 MHz PowerPC 604e Processors turn your Mac into a Multiprocessing Machine! These powerful upgrades are designed to easily install into the Power Macintosh 7500, 7600, 8500 or 9500, and the UMAX S900 and S700. No special skills are required to install the card. If you are running at 100, 120, 132, or even 150 MHz, all applications and the Mac OS itself will see a speed increase to 180 MHz. Multiprocessing aware applications will see gains of 2x to 3x! With dozens of multiprocessing applications in development, nPOWER is assured of speeding applications right into Mac OS 8, which is also going to support multi-processing from the outset.

360+ £1195

400+ £1375

SPECIAL OFFER!!!

ClarisWorks 4, VTC ClarisWorks Training, KidPix, Now Utilities 6 and Electronic Arts Top Ten Pack I bundle

ONLY £89!!!

PHONE NOW FOR A LIST OF SALE ITEMS, SPECIAL OFFERS AND LIMITED STOCK - UPDATED DAILY

DATA STORAGE

d2 External Drives

1.2 Gig . . £275.00
2 Gig . . . £299.00
4 Gig . . . £795.00

Syquest EZFlyer

£189.00

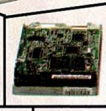
Jaz 1 Gig

£325.00

Iomega ZIP

£109.00

Internal Drives



1 Gig . . .£215.00
2 Gig . . .£249.00
3 Gig . . .£325.00
4 Gig . . .£625.00

d2 8 x CD Drive £185.00
d2 10 x CD Drive £225.00

4 x read, 4 x write CD Writers from only £575.00

JOIN THE INTERNET
With MacLine

We understand the problems of connecting a Mac to the Internet and can help you navigate through the maze of IP, TCC/IP and MacTCP. It's easy when you know how!

£25.00 joining fee and £12.00 per month

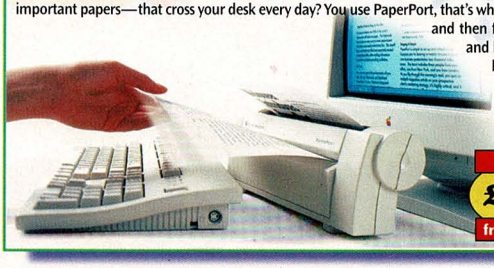
....and the joining fee is halved when you purchase a modem.

FULL INTERNET ACCESS FOR MAC USERS!
WORLD-WIDE-WEB, EMAIL, FTP, GOPHER

VISIONEER *The World's leading paper management system*

Paperport Vx

Okay, so you have no trouble getting paper out of your Mac. But what do you do with the articles, letters, receipts, and business cards—the important papers—that cross your desk every day? You use PaperPort, that's what! Just plug PaperPort into your Mac's printer or modem port and then feed in a piece of paper. PaperPort grabs the paper, scans it and launches the software automatically—there isn't even an ON button! Instantly useful. PaperPort begins to display your documents on the screen even before you're through entering them! Now you've got electronic copies that you can retrieve at any time, using PaperPort's easy-to-use search tools. Streamline your work. With PaperPort's direct links to word processors, OCR software (included!), printers and fax modems, you can file, edit, annotate, print and send your documents directly to others.



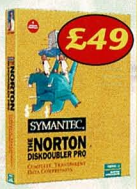
ONLY **£245** free software

SYMANTEC.
Best-selling Mac tools & utilities

The Norton Utilities

Put these essential, award-winning tools to work for you and never fear data loss again! The Norton Utilities is the most powerful collection of tools ever developed for protecting and recovering your data. The award-winning technology recovers data where others can't and is **your best bet for 100% data recovery.**

Norton DiskDoubler Pro

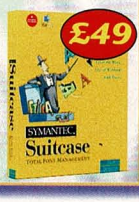


Try the brilliant Norton DiskDoubler Pro - and double the capacity of your existing hard disk, instantly and automatically. The award winning technology compresses files an average of 50 percent, and up to 99 percent. It's the **fastest, tightest, safest compression available.**

SAM

The war against computer viruses is over, and you've won! Symantec AntiVirus for Macintosh automatically locks out viruses and repairs infected files. SAM is the highest-rated, best-selling Macintosh virus protection program in the world - the fastest and most unobtrusive. **Install SAM once and never worry again!**

Suitcase



Suitcase is an essential tool for everyone who works with fonts. You can group fonts into sets for quick access; display them within applications using WYSIWYG font menus; and sample fonts in any size and style to take the guesswork out of selection. You can even link fonts to specific applications, so your fonts will automatically open when you need them.

PROGRAMMING

HYPC	HyperCard 2.3.5 (new version, more power)	£89.00
CDWG	Metrowerks Code Warrior Gold v.11 (PowerMac compiler)	£290.00
CDWJ	Discover Programming with JAVA	£65.00
FTBS	FutureBasic II (the best Basic for Mac, inc. PG Pro)	£179.00

UTILITIES

ATMC	ATM Deluxe (manages and anti aliases fonts)	£49.00
CPTV	Captivate (professional screen capture utility)	£52.00
INVU	Conflict Catcher 3.0 (INIT manager and more)	£55.00
NDBP	DiskDoubler Pro (Disk,Auto and Copy Doubler)	£59.00
HDTK	Hard Disk Toolkit (the best formatter and checker)	£109.00
NUME	Norton Utilities 3.2 (best selling utilities package)	£69.00
NOWU	Now Utilities 6.5 (suite of essential utilities)	£59.00
POPF	PopUpFolder (view folder contents with submenus)	£29.00
QCKY	QuicKeys 3.5 (macro maker, time saver utility)	£59.00
RAMD	RamDoubler 2 (actually doubles your available RAM!)	£45.00
SPED	SpeedDoubler 2 (greatly improves performance)	£45.00
THDR	SpellCatcher (spellchecker, works in all applications)	£45.00
SFDL	Stuffit DeLuxe (famous file compression program)	£65.00
SUIT	Suitcase 3.0 (manage your font menus)	£49.00
HDTT	Turbo Toolkit (speeds up startup and Finder)	£45.00
OPDT	DeskTape Pro (treats DAT as if it were a 2Gb drive)	£199.00
MPRA	MacPrefect (secures most aspects of the Finder)	£45.00
PRSB	Personal Backup (best value backup on the market)	£29.00
RTSP	Retrospect 3.0 (powerful archival backup)	from £119.00
SAM	SAM 4.5 (Symantec's anti virus utility) special offer	£49.00
VIRX	Virex 5.66 (best virus tracer & eradicator of all)	£59.00
LTSS	Looney Tunes (famous cartoon screensaver)	£19.00

EDUCATION

FROM 3 YEARS UPWARDS

		inc VAT	ex VAT
KDMH	KidsMath (takes kids from counting to arithmetic)	£34.08	(£29)
KDPX	KidPix II (wonderful paint program with sound effects)	£28.20	(£24
NMBM	NumberMaze (award winning arithmetic tutor)	£41.03	(£35)
RDMZ	ReadingMaze (letter recognition to sentences)	£41.03	(£35)
TYEN	Typing Instructor (good training from basics to touch)	£29.38	(£25)

Open Monday to Friday 8.30am to 6pm
Saturday 10am to 4pm.

Note all prices exclude VAT

MACROMEDIA
World-leading creative products

ONLY **£445** SAVE £600!

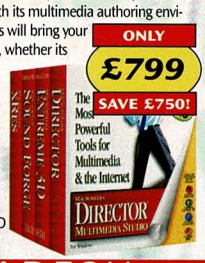
FreeHand Graphics Studio 7.0

A bundle of four of the most innovative and powerful creative software packages around. With a complete set of high-perfomance tools for graphic , it enables you to turn your ideas into reality using **FreeHand 7.0**'s dynamic illustration, design and page layout capabilities. Produce CAD-accurate 3D models, animations and renderings with **Extreme 3D 2.0.** Composite, edit and manipulate your hi-res images with **xRes 3.0** , without the need for large RAM requirements; and add hundreds of variations to your existing font library with **Fontographer 4.1**. FreeHand Graphics Studio 7 also contains **Shockwave**, clip art, photography, 3D models, and fonts.

Director Multimedia Studio 5

A bundle of five of the most popular multimedia tools in a single package making professional multimedia production simpler and more cost effective.The Studio, with its multimedia authoring environment and fully integrated tools will bring your projects alive from the ground up, whether its images, sound, 3D animation, or multimedia on the Web, without any problems of incompatible software. **With a compatible file format between Mac and Windows you'll only have to author your project once,** moreover you can deliver applications to OS/2, 3DPO, OS/9, Enhanced CD and the World Wide Web.

ONLY **£799** SAVE £750!

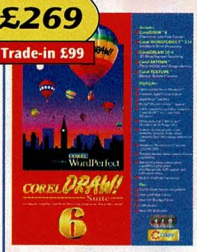


UPGRADES!!

FGS 7.0 FROM	DMS 5	FreeHand 7	Director 5
£159	£399	£125	£295

COREL

ONLY **£269** Trade-in £99



CorelDRAW! 6

INCLUDES:
CorelDRAW!: The premier vector illustration package.
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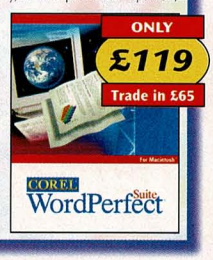

PC COMPATIBILITY

DSMT	DOS Mounter 95 (read/write PC floppies) limited offer	£29.00
MLPT	MacLink Pro (best Mac/PC link with100's translators)	£105.00
SFWD	SoftWindows 3.0 (special offer - while stocks last)	£175.00
SFWE	SoftWindows 95 (special offer - while stocks last)	£199.00

INTERNET

4DFI	4D First Internet Server (fast, relational server)	£109.00
AINK	Apple Internet Connection Kit (available on CD ROM only)	£49.00
HMPG	Claris Home Page (special offer - while stocks last)	£29.00
BK5010	Internet Starter Kit (the best book)	£36.86
CLEM	Emailer (great mail program, supports many services)	£45.00
EDRAA	Eudora 2.1 (most popular mail package)	£59.00
INET	Internet Access Kit (Internet dial up, email, Web, FTP)	£25.00
NTSCB	NetScape Navigator (best browser, includes manuals)	£59.00
NUTW	Now Web Publisher (put diary/schedules on the net)	£95.00
PGML	PageMill 2 (the WYSIWYG way to create web pages)	£65.00
STML	SiteMill 1 (eases maintenance of Web Sites)	£139.00
WBBY	Web Buddy (makes your surfing easier)	£39.00

POWERBOOK

CCPx	Carry Case (Apple or third party)	from £19.00
PCNA	Ethernet Card (Farallon 10BaseT PCMCIA card)	£175.00
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TPCM	TDK Modem (PCMCIA 28.8 fax modem)	£215.00

ACCESSORIES

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QCKL	Colour QuickCam (colour video camera for QuickTime)	£159.00
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TMADD	Thinking Mouse (4 button with software)	£59.00
TMADC	Turbo Mouse (top selling trackball)	£75.00
WCU6D	Wacom ArtPad II A6 (handy stylus and tablet, inc Dabbler)	£120.00
WCU5	Wacom UltraPad A5 (stylus and tablet)	£249.00
WCU4	Wacom UltraPad A4 (profesional stylus and tablet)	£359.00
VR256	256K VRAM Chips (adds more colours)	£19.00
VR512	512K VRAM Chips (adds more colours)	£25.00
VR9A	1Mb VRAM DIMM (for 7200, 7500, 8500)	£39.00

CD ROM

EDUCATION

		inc VAT	ex VAT
ARTT	Arthur's Teacher Trouble (interactive story book)	£28.20	(£24)
ARTB	Arthur's Birthday (more Arthur)	£28.20	(£24)
FMRD	Creative Writer & Fine Artist on CD ROM	£41.12	(£35)
LJZCD	Logical Journey of the Zoombinis (rave reviewed)	£28.20	(£24)
HHHS	Harry and the Haunted House (the new best seller)	£28.20	(£24)
KDPCD	KidPix Studio (KidPix plus animation)	£28.20	(£24)
RUFF	Ruff's Bone (adventures with Ruff the dog)	£28.20	(£24)
HARECD	Tortoise and the Hare (the epic race)	£28.20	(£24)

REFERENCE

		inc VAT	ex VAT
3DAT	3D Atlas (simply wonderful)	£45.83	(£39)
MAGCD	Art Gallery (Microsoft's tour of the National)	£34.08	(£29)
CINI	Cinemania '97 (19000 movie reviews and more)	£28.20	(£24)
NCRT	Encarta '97 (fantastic multimedia encyclopedia)	£39.35	(£34)
GRLCD	Groliers Encylopaedia 97 (21 vols, 9 million words!)	£45.83	(£39)
OEDCD	Oxford English Dictionary (the whole thing)	£264.38	(£225)
REDCD	Red Shift (superb astronomy program)	£41.13	(£35)
UHBCD	Ultimate Human Body (Dorling Kindersly's one)	£29.38	(£25)

ENTERTAINMENT

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		inc VAT	ex VAT
MRTHCD	Marathon 1 and 2 Bundle (can you resist?)	£31.73	(£27)
WRGCD	Warcraft II (detailed graphics, haunting sound)	£37.61	(£32)
ACSOC	Actua Soccer (set to be number one for sure)	£31.72	(£27)
MJPCD	Maj Jong Parlour (classic oriental game)	£41.13	(£35)
ELACE	Electronic Arts Top 10 pack II	£41.13	(£35)
MYST	MYST (magical mystery adventure)	£37.61	(£32)
SIMCC	Sim City 2000 Collection (with extra goodies)	£41.13	(£35)
PRPCD	Prince of Persia I & II (two of the best ever)	£11.75	(£10)
IFDCD	In the First Degree (play a murder prosecutor)	£37.61	(£32)

BEST SELLING GAMES ON FLOPPY DISK

		inc VAT	ex VAT
ERIC	Eric's Ultimate Solitaire (a dozen patience games)	£41.13	(£35)
A10A	A10 Attack (the best flight sim around)	£45.83	(£39)
F18H	F/A18 Hornet (from the creators of Hellcats)	£57.58	(£49)
BRDG	Bridge (not the Golden Gate but the card game)	£29.38	(£25)
FLSM	Microsoft Flight Simulator (realistic, accurate)	£41.13	(£35)
LEM3	Lemmings/Oh No! More Lemmings Bundle	£25.85	(£22)

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BK4075	Mac Bible 6th Edition	£24.95
BK5010	Internet Starter Kit Mac	£37.00
BK6035	Quark Xpress Book 4th Ed.	£29.99
BK3051	Using FileMaker Pro 3.0	£32.49

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Are you a Mac expert?

How much do you really know about your Mac? Try our quiz and see how you rate on the Mac EQ scale. Your quiz-master is Alex Summersby...

Are you a Mac expert or a novice? Even if you use a Mac every day, do you really know what's going on behind that smiley face? This quiz will help you find out just how much – or even how little – you understand about the inner workings of your machine... and about what to do if it goes wrong. Just pick the answer you think is most correct, then read the paragraph below the card to check, and finally tally up your score on page 38. No cheating now!

Mac~Genius

Q 1. An alert message with a "bomb" icon appears on your screen. What should you do?

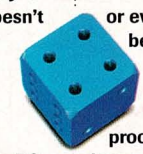
(a) Panic

(b) Call the bomb squad

(c) Click on the "Restart" button in the alert window

(d) Hold down **[command]**, **[control]** and the power key on your keyboard to restart your Mac

A **A bomb means your System, not just a program, has crashed. Therefore, the "Restart" button on-screen is pretty unlikely to work reliably. Try using the keyboard combination in (d) to restart. If – but only if – this doesn't work, resort to your Mac's hardware reset button (the one marked with a triangle), if there is one. If you *keep* getting bombs, you could try calling in help – a diagnostic program like *Norton Utilities*, or even a knowledgeable human being would be good...**



Mac~Genius

Q 2. What is the difference between a PowerMac and a plain old Mac?

(a) About £50

(b) You can't buy new games that run on a plain old Mac any more

(c) PowerMacs have more... er, power. Obviously

(d) PowerMacs are based on PowerPC chips rather than the older 680x0 chips, meaning they offer vastly greater power and speed

A **The PowerPC chips used in PowerMacs are RISC (Reduced Instruction Set Computing) processors. Pre-PowerMac Macs all used the Motorola 68000 family of chips, which were all CISC (Complex Instruction Set Computing) processors. To put it simply, RISC processors use a more concise, less convoluted "vocabulary" of instructions, and they deal with these 32 bits at a time rather than 16 bits at a time (as 68040 processors do), all of which means they can handle more instructions in the same time – at least *six times* more. What's more, they run cooler, which means they can run at higher clock speeds, executing even more instructions each second. The fastest 68040 chip ran at around 40MHz; today, 200MHz is not uncommon, and 500MHz chips are expected by the end of the year.**

Mac ~ Genius

Q 3. What determines the size of the largest monitor you can use?
(a) The size of your bank balance
(b) The current condition of your bad back / hernia / war wound
(c) EC regulations on the load-bearing capacity of your desk
(d) Whether you have enough VRAM to display the number of colours you want to display at that resolution

A It's not so much the size of a monitor that matters, but the resolution – the number of pixels or picture elements on-screen – and the "colour depth": a palette of millions of colours requires your Mac to set aside three bytes (24 bits) of memory for every single pixel; 256 colours means only one byte (eight bits) per pixel. To map out the display, your Mac uses Video RAM or VRAM – special memory set aside for this purpose. The amount you need is determined by this formula:

VRAM required (in kilobytes) = resolution x bit-depth / 8192.

So to use a 17-inch monitor (typical resolution 1,024 x 768) in thousands of colours (16-bit colour) your Mac will need 1,536K of VRAM. To go to millions of colours you'll need almost twice the VRAM (2,304K).

Mac ~ Genius

Q 4. What is an FPU and where would you find one?
(a) Fancy Pastry Utensil – in the kitchen
(b) Floating Prone Underwater – at a diving school
(c) Fast Processor Update – a card that plugs into your Mac
(c) Floating Point Unit – somewhere near your main processor chip, or in it

A A Floating Point Unit or maths co-processor is a separate processor chip that takes over intensive mathematical calculations from your main processor. This is useful for applications that demand a lot of calculations, such as large spreadsheets and 3D rendering – indeed, some 3D and graphics-heavy programs won't run without an FPU, though you can sometimes fool them into thinking your Mac has one even if it hasn't, using a utility called *SoftwareFPU* (it's on this issue's Cover CD). PowerMacs have an FPU built into the PowerPC chip, but pre-PowerMac software sometimes fails to recognise that. The best solution for this is to upgrade to the latest version of the software concerned.

Mac ~ Genius

Q 5. Why can't you simply plug any old RAM upgrade into any Mac?
(a) Older Macs used SIMMs, newer Macs use DIMMs
(b) Some Macs use 72-pin SIMMs, others use the 30-pin variety
(c) In many 68K Macs, you have to install pairs of identical SIMMs in matching slots
(d) The SIMMs could be the wrong speed for a particular Mac

A Easy – all of the above! Basically, there's no such thing as a plain "RAM upgrade". RAM comes in the form of SIMMs (Single In-line Memory Modules) or DIMMs (Dual In-line Memory Modules), with different amounts of RAM fitted. SIMMs come in 30-pin and 72-pin varieties. Different Macs need different speeds of memory (rated in nanoseconds). To complicate matters still further, in many Macs with several SIMM slots, you had to fill pairs of slots with SIMMs of identical capacity – *four* at a time in a IIci, for instance. (It got worse: to install 4Mb SIMMs in a Mac II or IIx, you had to use special *PAL* SIMMs... But let's not get into that.) In a nutshell, you can't take your old 1Mb, 30-pin, 80ns SIMM from a IIci and expect to use it in your new PowerMac 9500, which needs 168-pin, 70ns, 64-bit DIMMs, of minimum capacity of 4Mb each... The golden rule: when you're buying RAM, *always* specify what model Mac it's for.

Mac ~ Genius

Q 6. Which of these memory-related terms is the odd one out?
(a) RAM
(b) DRAM ("dee-RAM")
(c) VRAM ("vee-RAM")
(d) PRAM ("pee-RAM")

A RAM or Random Access Memory is the general term for the "volatile" memory in which your Mac holds data while it is in operation – that is, its contents are lost when your machine is switched off (or crashes...). DRAM or Dynamic RAM is the generic term for RAM which holds application programs and any data you input. VRAM or Video RAM is separate memory set aside to map the data that makes up your screen display, which has to be "plotted out" before being sent to the monitor. PRAM or Parameter RAM is another separate kind of memory, used for storing various settings, including the date and time, plus any settings you make using your Mac's Control Panels. Plain old RAM may be the only one of these with only three letters, but PRAM is the odd one out because you don't lose PRAM settings when you switch off – its contents are preserved by a little battery inside your Mac.

Mac ~ Genius

Q 7. Which of these Apple products is the odd one out?
(a) QuickDraw
(b) QuickTime
(c) QuickTime VR
(d) QuickTake

A QuickDraw is the imaging system built into your Mac, used for screen display and for printing to many printers, including StyleWriters. QuickTime is Apple's video (and sound, and music) playback system – not built in, but a System Extension. QuickTime VR is an enhancement to QuickTime that "knits together" several still images into a "virtual reality" environment on-screen. QuickTake is the brand name for Apple's series of digital cameras, which capture photographic images in a form your Mac can store and display without using intermediate digitising or scanning-in. It has to do with digital images, but it's a separate piece of kit, not a software technology, so it's the odd one out. ➤

Mac Genius

Q 8. The newest PowerMac models are often referred to as "PCI Macs". What does PCI mean?
(a) Politically Correct Interior
(b) Pentium Chip Inside
(c) Pretty Crap Interface
(d) Peripheral Component Interconnect

A Probably not (a). Definitely not (b), unless they also happen to have a PC-compatibility card fitted. Not (c), unless you're talking about the interface that goes along with (b). "PCI" refers to the kind of connection slot provided for adding upgrades such as graphics boards, accelerators or special networking cards, replacing the older standard NuBus slots (and the slightly less common PDS or Processor Direct Slot standard you'll find on some Macs). See our Mac table on page 124 to check out what kind of slots your Mac has, and how many of them.

Mac Genius

Q 9. Which of these terms is the odd one out?
(a) Memory
(b) RAM
(c) Megabytes
(d) Hard disk space

A A bit of a trick question, this one, actually, in a way. You measure both RAM and disk space in bytes, kilobytes (normally abbreviated simply "K"; rarely "Kb" these days) and megabytes (abbreviated "Mb") – but RAM and disk space are different things. RAM is where your Mac holds data (or a program) while it is being worked with; disk space is where it stores "saved" data, which can be fetched as needed. The term "memory" is often used loosely, but it strictly should refer only to the former, although that's pretty unintuitive: "memory" is where a human being "stores" information; if you're actually working on something, it should surely be in some sort of work *space* rather than "memory"... I'm sorry, what was the question again?

Mac Genius

Q 10. You find that an application or multimedia presentation won't quit when you press **[command] Q**. What do you do?
(a) Panic
(b) Switch power off at the mains
(c) Switch power off on the back of your Mac
(d) Press **[command] [option] [escape]** to Force Quit

A If any program doesn't give you a menu bar or isn't responding to normal keyboard commands, you should be able to force it to quit using the key combination [command] [option] [escape] – though this will mean you lose any unsaved data. If this doesn't work, you may have to restart by holding down [command], [control] and the power key – which means you'll lose unsaved data in any open application, not just the troublesome one. (Some experts say that a Force Quit leaves your Mac in an unstable state and you should restart as well, but at least you can do a Save in any other open applications first.) Don't switch the power off unless you really have no other choice – but if you do so, leave it off for a good ten to twenty seconds before switching on again, to prevent a power surge effect that could corrupt data anywhere on your hard disk.

Mac Genius

Q 11. What is "an error of Type 1"?
(a) A memory problem
(b) A memory problem
(c) A memory problem
(d) Inevitable

A Technically speaking, a Type 1 error is a "bus error", which is a memory problem. It occurs when some program tries to access memory that isn't available or doesn't exist – in other words, an application has strayed into an area of memory it shouldn't have. This may occur because the application is badly programmed in the first place, but it may be that it needed more memory than you had allocated to it. (Try giving it more.) It may be that other open applications were hogging all available memory, though this is becoming rarer now that more sophisticated memory management software is available, both built into the System and in the form of utilities like *RAM Doubler* and *RAM Charger* (reviewed last issue) – but try quitting other applications anyway. It may be that an Extension has grabbed a slice of memory that doesn't belong to it. Find it and trash it.

Mac Genius

Q 12. How do you get those little sub-menus in your Apple menu?
(a) Install the shareware program *BeHierarchic*
(b) Install another shareware Extension such as *Apollo*
(c) Install System 7.5
(d) Install the Apple Menu Items Extension, whatever System version you use

A Easy – any of the above! It isn't System 7.5 itself that does the trick, but the Apple Menu Items Extension that comes as part of System 7.5. Apple doesn't recommend using Extensions with versions of the System earlier than the one they're designed to work with, but it can do no harm to try it if you're using an earlier System but know someone with 7.5. If it won't work, you'll get an alert message saying so ("because it is too new", it will helpfully explain). If this is the case, or you find you're getting crashes or other problems that may be down to Extensions conflicts, you can always resort to the earlier *BeHierarchic* – it's virtually identical, though it lacks some of the clever touches like the "Recent Documents" and "Recent Applications" shortcuts in the Apple menu.

Mac Genius

Q 13. What is "an error of Type 11"?
(a) A memory problem
(b) The commonest error on PowerMacs
(c) Caused by pre-PowerMac software
(d) Inevitable

A **Technically speaking, a Type 11 error is a "miscellaneous hardware exception error", which is *not* a memory problem. Broadly, it means that a program was expecting something of your hardware and it didn't happen. Type 11 errors are now said to be the most common types of crashes on PowerMacs, but they usually occur if you're running older software, especially with the latest versions of the System and the newest Macs. They frequently occur if you're using old 68K software that looks for a Floating Point Unit or maths co-processor without going through the proper channels (an Apple routine called SANE, if you must know): because PowerPC chips have FPU functions built-in and *not* on a separate chip, such software will be looking in the wrong place – and therefore probably crash. The solution is easy: consider upgrading your software as well as your Mac.**

Mac Genius

Q 14. If your Mac's self-diagnostic tests reveal a fault at start-up, what alert sound should you hear instead of the usual start-up chord?
(a) A male voice singing "Daisy, Daisy, give me your answer, do"
(b) A series of (up to eight) musical notes
(c) The first four notes of the Twilight Zone theme tune
(d) The sound of a car-crash

A **When it starts up, your Mac performs a series of self-diagnostic tests to check for hardware faults. If all is well, you'll hear the normal start-up chime or musical chord, and the start-up sequence will continue. If there's something wrong, you'll hear a different sound. Just as the start-up chord varies between Mac models, the alert sound varies too: on Mac II models, it's a series of musical notes; on Centris and Quadra models it's the first four notes of the Twilight Zone theme tune; on PowerMacs it's a terrifying sampled car-crash sound. The most common faults that cause this to happen are a loose SIMM or a problem somewhere on the SCSI chain. This means that you're most likely to hear the alert sound if you've just added a memory upgrade (check that it's seated firmly in its slot) or plugged in an external drive or other SCSI device (check the connection and the SCSI cable, check for SCSI ID number conflicts, and make sure the device is switched on).**

Mac Genius

Q 15. Who makes the PowerPC chips used inside PowerMacs?
(a) A consortium formed by Apple, Motorola and IBM
(b) Apple
(c) Motorola
(d) IBM

A **The PowerPC chip was *developed* jointly by Apple, Motorola and IBM, but not all of these are chip manufacturers. Motorola, of course, made the 680x0 (or "68K") family of chips used in pre-PowerMac Macintosh models, ranging from the original 68000 chip used in the first Macs up to the 68040 used in Quadras. However, though Motorola was crucial in the development of the PowerPC chip and does manufacture the 603, 603e and 604 chips used in the current PowerMac models, it did not make the PowerPC 601 chips used in the first generation PowerMacs. They were actually made by – wait for it – IBM. Open up a PowerMac 6100, 7100 or 8100 and check for yourself. (IBM's own computers, of course, have chips made by some other company inside...)**

Mac Genius

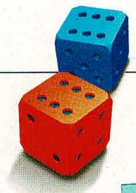
Q 16. What is a "Clipping file" and what is so useful about it?
(a) A drawer full of old newspaper clippings used by journalists for reference
(b) Another name for the contents of the Clipboard, saved there automatically when you Cut or Copy
(c) Another name for the contents of the Scrapbook, to which you can save images or chunks of text
(d) A way of saving an image or a selected block of text as a separate file straight onto the Desktop in System 7.5

A **Macintosh Drag and Drop, one of the few really new features in System 7.5, enables you to *drag* text from the Note Pad, for example, straight into *SimpleText* without having to Cut and Paste. This is very useful if you already have something saved to the Clipboard and don't want to lose it – the Clipboard, unfortunately, can still hold only one Cut or Copied item at a time. The Clipping Extension works with Drag and Drop to enable you to drag a picture or chunk of text (or sound, or movie) out of the window you're working in and straight onto your Desktop, where it turns into a "Clipping file", which you can then open simply by double-clicking. This is a handy shortcut for saving an image or text without going through the bother of Cut-and-Paste, opening the Scrapbook (or creating a new one if you want just this one item on its own), or losing what you've already got in the Clipboard.**

Mac Genius

Q 17. When you start up your Mac, you might get any of the following on-screen. Which is likely to mean a hardware fault?
(a) Instead of the happy Mac face, you see a little disk with a flashing question-mark on it
(b) Instead of the happy Mac face, you see a little disk with a big "X" on it
(c) Instead of the happy Mac face, you see a "sad Mac" on a black screen
(d) Instead of any of the above, the screen stays black

A **A flashing question-mark and an "X" both mean that your Mac can't find a disk with a usable System file on it. This may be because of a fault in the SCSI chain or connectors, but it's more likely to be a software problem – possibly corrupted System software. A "sad Mac" could also be a System folder problem, but it is likely to be a hardware fault, though not necessarily a serious one – it's most likely a loose SCSI connection or a SIMM not seated firmly in its slot. A screen that just stays black is almost certainly a hardware fault – a problem with either a monitor or cable (or graphics card, if you have one), or a power supply problem.**



Mac Genius

Q 18. What is Cyberdog?
(a) A robot canine, also known as "Preston"
(b) A new form of robotic device, controlled from your Mac
(c) Apple's code name for the next model of PowerBook
(d) Apple's new Internet browser technology

A **Software for connecting you to the Internet has come a long way since the worldwide communication system was first devised, and Apple's *Cyberdog* may just be the most ambitious Net software to date. It's a suite of small programs which uses Apple's OpenDoc component system. This means you can drop a Cyberpart into any OpenDoc document, mixing Internet connectivity with word processing or spreadsheets. Imagine a spreadsheet of your shares and their dividends, which connects to the Web to get today's new stock index figures and updates your table automatically. It's the sort of conventionally complex task that *Cyberdog* makes dazzlingly easy. Look out for more on OpenDoc and *Cyberdog* in our special feature next issue.**

Mac Genius

Q 19. Rank the following processor chips in order of power:
(a) PowerPC 601
(b) PowerPC 603
(c) PowerPC 603e
(d) PowerPC 604

A **In general, the higher the number, the more powerful the processor – so the Motorola 68040 chip was more powerful than the 68030, and so on. In broad terms, that's still true, and the PPC 604 is certainly more powerful than the 601. However, the 603 chip is actually a low-power-consumption chip developed for use in PowerBooks, not for increased *computing* power, and it's actually *less* powerful than the 601 chip used in the first PowerMac models. The 603e is roughly on a par with the 601, so a Performa 5300 has about the same power as the original PowerMac 8100. Crucially, though, the 603e can operate at significantly higher clock speeds – so the new black-cased 5400/180, with its 603e processor clocked at 180MHz, boasts better performance still – and for just over £2,000 (well under half the original price of the 8100).**

Mac Genius

Q 20. Why do you never actually have 1.4Mb available on a "1.4Mb" floppy disk?
(a) The man at the floppy disk shop lied to you
(b) You do really – the "info bar" at the top of the window on screen is lying to you
(b) They always leave some space in case of bad sectors
(c) The invisible Desktop file takes up the rest of the space

A **Like your Mac, every floppy disk has to keep track of what files it contains, where their data is located, and even little details like what each file is called, what created it and what its icon looks like. It does this in its invisible Desktop files. Obviously, the bigger the volume, the more data has to be stored in this database and the larger the Desktop files become. They typically take up 4K or so on an empty floppy disk, but may fill over a megabyte on an average 500Mb hard disk. Periodically rebuilding the Desktop – forcing your Mac to update the database – will help to keep the size down, as well as help keep track of where files are and what their icons should look like. You do this by holding down [command] and [option] when you restart – or for a floppy, when you insert it.**

Mac Genius

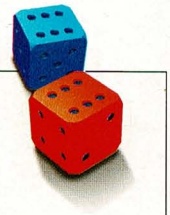
Q 21. Why does the 2K file you copied from a floppy disk suddenly fill 64K on your hard disk?
(a) Overheads. What can I say? When we opened it up, it just needed all that extra work...
(a) It doesn't – the **Get Info** window on screen is lying to you
(b) Your Mac has stored 32 copies of the file just in case, as a data security measure
(c) Every disk has a minimum file size, corresponding to the smallest "block" of data it can be divided into

A **Every disk is divided into data "blocks". On a floppy, each may be 2K; on a 200Mb hard disk, it may be 8K. Disks can only store data in whole units of blocks, so if you copy, say, a 9K file from a floppy, it will fill up one block on the hard disk plus a little more. The only way the hard disk can store that little more is to allocate it an entire block, so it balloons to 16K. A file smaller than 8K will seem to fill up a whole 8K (though it hasn't actually changed – check the "bytes used" figure in the Get Info window). The bigger the hard disk, the bigger the block size (17K on a 500Mb disk, up to 64K on a 4Gb). This is one very good reason for partitioning or subdividing a big hard disk into smaller parts – each is treated like a separate disk (with its own icon), and each will have a smaller block size, meaning more efficient use of space.**

Mac Genius

Q 22. What is OpenDoc?
(a) A file that won't close properly
(b) A new menu command in System 7.6 for opening files
(c) Apple's new "component software" system, which could spell an end to monolithic, RAM-hogging applications
(d) The subject of a feature in the next issue of MACFORMAT

A **Today's increasingly powerful and feature-packed applications software takes up an increasingly huge amount of memory. A package like *Photoshop 4* can demand 16Mb of RAM just to open. But a lot of this may be consumed by features you're not going to need. Surely it would be more efficient to load into memory only the functions you want to use, as and when you want them. That's the basis for Apple's OpenDoc component software concept. But why stop there? If you can load individual functions or "mini-applications" as you want them, why not call on a spell-checker if you want to check text in your art program, for instance, or use a spreadsheet module in your word processor? Just double-click on the right part of your document, and the relevant "component" software will load, ready for action. Discover more about this new flexibility and ease of use in our feature next issue!**



Mac Genius

Q 23. Which of these is the odd one out?
(a) SCSI
(b) SCSI-2
(c) SCSI ID
(d) SCSI JBOD

A SCSI (Small Computer Systems Interface) is the Mac standard "data bus" system used for linking your Mac, its hard disk, floppy drive, and any external devices such as CD-ROM drives, and transferring data between them. Actually, it's not quite standard any more, because to cut costs, some Macs use cheaper IDE (Integrated Drive Electronics) hard drives – and in fact most so-called SCSI devices these days use a newer, faster version called SCSI-2. But whether they're SCSI or SCSI-2, all devices on the SCSI chain must have a unique ID number between 0 and 7 – usually the Mac itself is ID 7 and the internal hard disk is 0; any CD-ROM drive is normally ID 3. So "SCSI ID" is the odd term out, because it isn't a type of SCSI bus. SCSI JBOD is – the very newest kind.

Mac Genius

Q 24. Which is the odd one out?
(a) PostScript Type 1
(b) PostScript Type 2
(c) PostScript Type 3
(d) TrueType

A Fonts on the Mac come in two basic types. Bitmap fonts are used by your Mac for screen display. Each character is "drawn" out of little dots or pixels. Each font file contains one font at one size, so to display a character at non-standard sizes, your Mac takes the nearest and scales it up, causing a blocky, jaggy appearance. The alternatives, vector fonts, are stored as instructions, so your Mac draws each character by "plotting" its outline according to these instructions. This means it can be scaled up or down without loss of quality. The first and most common vector font type is PostScript, named for the "page description language" it is based upon. These fonts come in two types, Type 1 and Type 3. TrueType is Apple's more recent vector font format, and it too is scalable. The odd one out is in fact PostScript Type 2: there is no such thing.

Mac Genius

Q 25. Which of these Extensions is the odd one out?
(a) Apple CD-ROM
(b) Foreign File Access
(c) High Sierra File Access
(d) ISO 9660 File Access

A All these Extensions enable your Mac to read files from CD-ROMs, but CDs come in different flavours. The original CD-ROM format was called High Sierra. (Why? Because it was hammered out at an industry conference, attended by Apple, Microsoft, Philips and others, held in 1985 at a place called High Sierra in Nevada). This evolved into the broader ISO 9660 standard, which is now pretty much the industry norm for CD-ROMs – a disc that conforms to ISO 9660 can be used on both Macs and PCs. Macs use a different file system from PCs, however, and you really need only Apple CD-ROM to access data on a Mac-only CD. Foreign File Access enables your Mac to read "mode 2" CDs, such as CD-I and PhotoCD formats. So the odd one out is Apple CD-ROM: it's the only one you really need for reading standard, Mac-specific CDs.

Mac Genius

Q 26. Which is the odd one out?
(a) PostScript
(b) QuickDraw
(c) Inkjet
(d) Laser

A You can use many types of printer with your Mac. Inkjet printers make marks on paper by squirting tiny droplets of ink onto the page; laser printers use particles of dust-like toner which is attracted to the page by an electrostatic charge and fused in place by heated rollers. There are other printing methods as well, such as dye sublimation and thermal wax. But regardless of the actual printing method, there are two basic imaging systems. Your Mac can send data to the printer in the form of PostScript instructions, which the printer has to "rasterise" (basically, convert to dots) using a built-in processor. Or your Mac can use its own QuickDraw imaging system – primarily used to generate the screen image – to rasterise the data, so the printer doesn't need an expensive built-in interpreter. All non-PostScript printers are known as "QuickDraw" printers, but QuickDraw is built into the Mac, not the printers. All the other terms here refer to technologies that *are* built into printers, whether they're imaging technologies or output systems.

Mac Genius

Q 27. You suddenly find that the icons for some of your files have changed to blank, generic "document" icons. What should you do?
(a) Panic
(b) Get out your paint package and start designing some new icons
(c) Switch off your Mac, leave it for a couple of hours and hope it gets better
(d) Rebuild the Desktop

A Your Mac keeps track of what files are on the hard disk, what application created them, and therefore what icon they should have, in its invisible Desktop files. These form a comprehensive database of the contents of your hard disk. However, as you delete, move and copy files, or save documents to different places on your hard disk or in different formats, this database can lose track – and sometimes, the Desktop files can become corrupted and the data in them gets scrambled. The most obvious sign of this is that your icons revert to generic document or application icons, or your Mac can't find the application to open a document when you double-click on it. Sounds awful, but the solution is simple: hold down [command] and [option] as you restart. This forces your Mac to "rebuild the Desktop" (reconstruct the database file.)

Mac ~ Genius

Q 28. What is MIDI?
(a) Longer than MINI, but not as long as MAXI
(b) A new, ultra-fashionable style of Mac case, to go with your midi hi-fi
(c) Multiple Input Device Interface, a way of chaining several mice and keyboards to one Mac
(d) Musical Instrument Digital Interface, a way of connecting music equipment to Macs and other computers

A Really modern musicians aren't just likely to play a digital keyboard or synthesizer; they'll create their music using a sequencer, or perhaps sequencing software on a computer. If it's software, they need some way of connecting a musical device such as a sound module to the computer – sophisticated though it is, the Mac's sound generation and output capabilities are not best suited for playing music. The standard system for connecting such music devices to computers is MIDI. Just as printing from your Mac involves sending instructions to your printer, controlling a MIDI device (once you've plugged a MIDI interface into your Mac) means sending it instructions about what notes to play and what "MIDI Controllers", such as Sustain or Pitch Bend, to apply, when, and for how long. You can even get music in MIDI File format, which you can play back through any MIDI device connected to your Mac.

Mac ~ Genius

Q 29. How can you tell if some piece of application software is PowerMac "native"?
(a) You can't
(b) Time some common functions with a very good stopwatch
(c) Read the manual
(d) Check in the application's **Get Info** window

A When Apple took the bold step of introducing a completely new kind of computer – which is what the PowerMacs are – it was taking a big risk. PowerMacs could run existing Mac software, but only under emulation – that is, by *imitating* the older, 68K Macs. This was the crucial factor that ensured the PowerMacs' success; but programs under emulation ran no faster than on the mid-range Quadra 700. To get the full benefit of the PowerPC chips' increased speed and power, you had to invest in "native" software – software specially written to take advantage of them. (More importantly still, the emulator in fact imitated the 68*LC*040 chip – the cut-down, FPU-less version of the 68040 – so PowerMacs often couldn't even run some of the most powerful of pre-PowerPC software, including most 68K 3D programs, so you *had* to get a native version.) How do you tell if an application is PowerPC-native? It's likely to boast about the fact in its manual and packaging, but try highlighting it and selecting Get Info. If it's PPC-native, there will be a little note at the bottom of the Get Info window about how much less RAM it will need if you turn on Virtual Memory. If there isn't, it's not PPC-native.

The Answers

For each answer, award yourself these points (0 = wrong; 1 = half-right, or possible; 2 = correct, or best option. And no, we're *not* going to argue about it):
1: (a) 0, (b) 1, (c) 1, (d) 2.
2: (a) 0, (b) 1, (c) 1, (d) 2.
3: (a) 0, (b) 0, (c) 0, (d) 2.
4: (a) 0, (b) 0, (c) 0, (d) 2.
5: (a) 2, (b) 2, (c) 2, (d) 2.
6: (a) 0, (b) 0, (c) 1, (d) 2. (PRAM is also the only term specific to Macs, as it happens.)
7: (a) 0, (b) 0, (c) 0, (d) 2.
8: (a) 0, (b) 1, (c) 0, (d) 2.
9: (a) 1, (b) 1, (c) 1, (d) 1.
10: (a) 0, (b) 1, (c) 1, (d) 2.
11: (a) 2, (b) 2, (c) 2, (d) 1.
12: (a) 2, (b) 2, (c) 1, (d) 2.
13: (a) 0, (b) 2, (c) 2, (d) 1.
14: (a) 0, (b) 1, (c) 1, (d) 1.
15: (a) 0, (b) 0, (c) 2, (d) 2.
16: (a) 0, (b) 0, (c) 0, (d) 2.
17: (a) 1, (b) 1, (c) 2, (d) 2.
18: (a) 1, (b) 0, (c) 0, (d) 2.
19. If you said a,b,c,d *or* b,a,c,d, you could be right, so take 1 point. Then again, it depends on the clock speed too. Look, let's not split hairs. If you had *any* order with (d) at the end, award yourself the whole 2 points. We'll trust you on this one.
20: (a) 0, (b) 0, (c) 0, (d) 2. (If you said a or b, are *you* paranoid!)
21: (a) 0, (b) 0, (c) 0, (d) 2.
22: (a) 0, (b) 0, (c) 2, (d) 2. (It's on sale Thursday 13 March – re-serve your copy with your news-agent now!)
23: (a) 0, (b) 0, (c) 2, (d) 1 (but only because SCSI JBOD isn't available yet). JBOD? It stands for "Just a Bunch of Disks". No, honestly. I'm not making this up...
24: (a) 0, (b) 2, (c) 0, (d) 1. (True-Type *is* different in one way: it doesn't require a printer with a powerful processor to interpret the PostScript instructions...)
25: (a) 2, (b) 1, (c) 0, (d) 0.
26: (a) 0, (b) 2, (c) 0, (d) 0.
27: (a) 0, (b) 1, (c) 0, (d) 2.
28: (a) 0, (b) 0, (c) 0, (d) 2.
29: (a) 0, (b) 0, (c) 1, (d) 2. (And take an extra point if you knew that the programmer who wrote it single-handedly – and, in doing so, probably saved Apple's bacon – was named Gary Davidian.)

How do you rate on the Mac Expertise scale?

57–60: Impossible. You cheated.

50–56: You probably cheated. Or if you didn't, you're one of those annoying know-it-alls who bores innocent party guests with exciting anecdotes about the last time you defragged your hard disk. You really should get out more. (Alternatively, we're just trying to make you feel guilty because you know more than we do. We had to look most of this stuff up. What do you think – normal people don't remember this kind of detail!)

30–49: Impressive. You clearly know your way around your Mac. Fellow Mac users probably come to you for help and advice – and you are able to give it. You are a wonderful person, and animals and small children are instinctively attracted to you. Fate smiles on you. You will either win the lottery next week or be offered a fabulously well-paid job working with the computer you clearly love so much. And when you do, you will want to wisely invest a tiny fraction of your earnings (or winnings) in a subscription to MACFORMAT, Britain's best-selling, and most caring, Mac magazine. *[I don't know, Jane – are you sure this is how they do it in all those women's magazines? – Ed.]*

Under 30: Look, this quiz thing is just a bit of fun, right. Nobody takes these things that seriously, after all. The Mac is famed for its ease of use. All you have to know about is point and click – you don't really need to have any understanding of what's going on beneath the surface. What does it matter if your answer to every one of the "trouble-shooting" questions was "Panic"? There's always someone around to call on – someone who scored *more than you* on this quiz. What do you care if you could easily and speedily learn *at least as much as they know*, in the *comfort* and privacy of your own home? All it would take is an inexpensive subscription to MACFORMAT, Britain's best-selling, and most informative, Mac magazine. Just turn to page 115 and learn how easily you could restore your flagging confidence, put on pounds of rippling muscle, win friends and amaze your colleagues... MF

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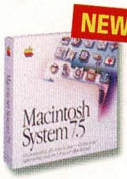

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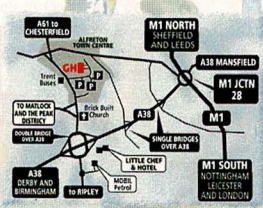

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Experiment with xRes

Last issue's MACFORMAT Cover CD brought you *xRes 2.0 SE* – not a demo, not save-disabled, but a fully working version of a top-quality image editing application. This issue we bring you the first in a series of tutorials showing you how to master it...

Read me!

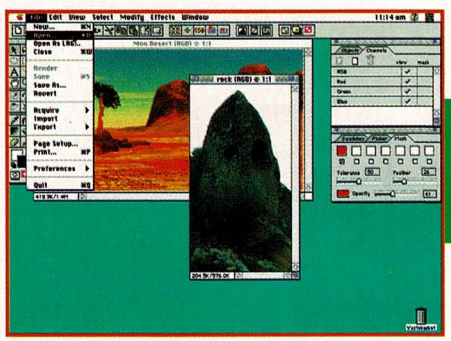
Want to know the serial number to get into *xRes 2.0 SE*, as included on last month's Cover CD? Then read the file marked "Important" in the *xRes* folder. In retrospect, we should have called it "Very Important".

We're really good to you. Last issue we gave you a copy of a complete image-editing suite, Macromedia *xRes 2.0 SE* (as long as you live in the UK or Europe, that is. Sorry). It has all the tools you need for image creation, manipulation, and compositing, and a special "xRes mode" that enables you to handle large images even *Photoshop* would have problems with, in much less RAM, so long as you have enough hard disk space. (It does this by using a screen-resolution version of the image and delaying the application of effects to the high-res version until you're ready. For details, see the extensive documentation and help files included with the program.)

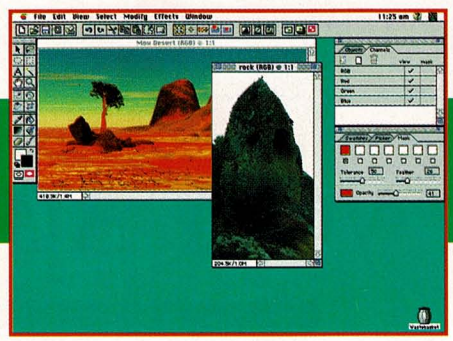
The only problem is, like any powerful program, *xRes* can take a little getting used to. A good deal of experimentation is needed to discover how to get the best from it. So over the next couple of issues, we'll take you step-by-step through some straightforward projects to help you get to grips with its tools and features.

xRes 2.0 SE's great strengths are its objects and masking tools. Together they make the process of compositing (a sort of digital photo-montage technique) quick and easy. The masks enable you to "blank off" areas of an image that you don't want to include, and the objects enable you to position, resize, and generally muck about with elements of your image in a way that even the mighty *Photoshop* is hard-pressed to do. This project makes use of both the masking tools and the objects palette, to combine elements from two different images and produce a simple composite picture.

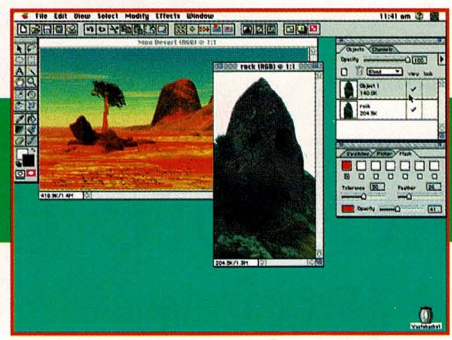
To make it easy for you to work along with our tutorial, we've used a couple of pictures from the "Best of Readers' Art" collection also included on last issue's bonus Cover CD. The program will work with any other pictures – we're just using these because we knew you'd have 'em!



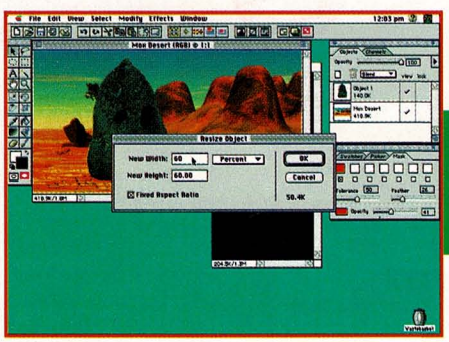
1 Use the **Open** command in the **File** menu to open the images you want to work on. We used **rock** from Manuel Guimaraes' folder, and **Mox Desert** from Mark Andrews' collection on the MF47 bonus Cover CD. What we plan to do is to drop Manuel's rock into Mark's landscape in a (reasonably) artistic manner.



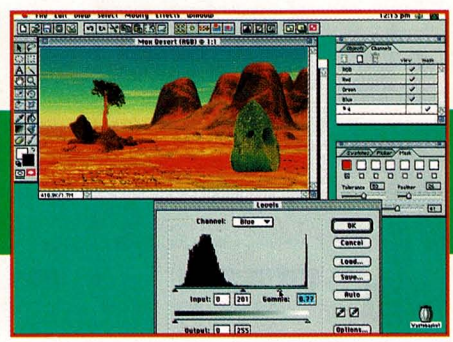
2 All we want from the **rock** picture is the rock itself, so we'll need to select it without picking up any of the background. For such an irregular shape, it's best to use the lasso tool, which is on the top right of the toolbox. The magic wand tool is good for awkward shapes too, but in this case it would have selected the surrounding rock too.



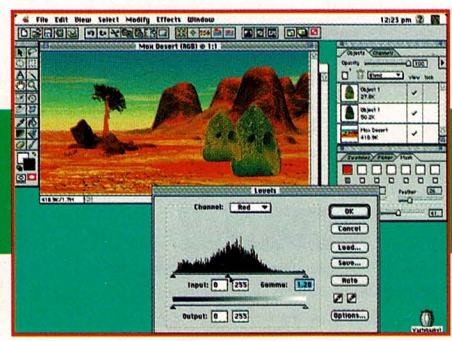
3 When you're satisfied with the shape you've selected, it's time to cut the rock out from its background. Click on the **Objects** tab on the palette on the right of your screen, so you can see what happens, then choose **Float** from the **Select** menu. A new entry, called **Object 1,** appears in the **Objects** palette. This is the cut-out rock.



7 To resize the rock, go to **Modify,** select **Resize** and then **Active Object**... A dialogue box appears, asking for a new size. Type in the size you want. If you want to stretch the rock one way or another, you'll have to uncheck the **Fixed Aspect Ratio** box. The units you work to can be selected from the little pop-up menu.



8 Move the rock by simply dragging it to where you want it, using the arrow tool. If you want to change the rock's colour, click on the **Channels** tab and then on **RGB** to select the colour channels. Now go to **Modify** again, select **Color** and then **Levels**... and play about with the sliders until you're happy with the colour.



9 Let's have some more rocks! We can easily create them by duplicating the first one. Click on the **Objects** tab and select **Object 1.** Now go to the **Edit** menu and select **Duplicate.** Another rock appears. Move and resize it just like the first one. Some more colour corrections will help to make it look like a different rock.

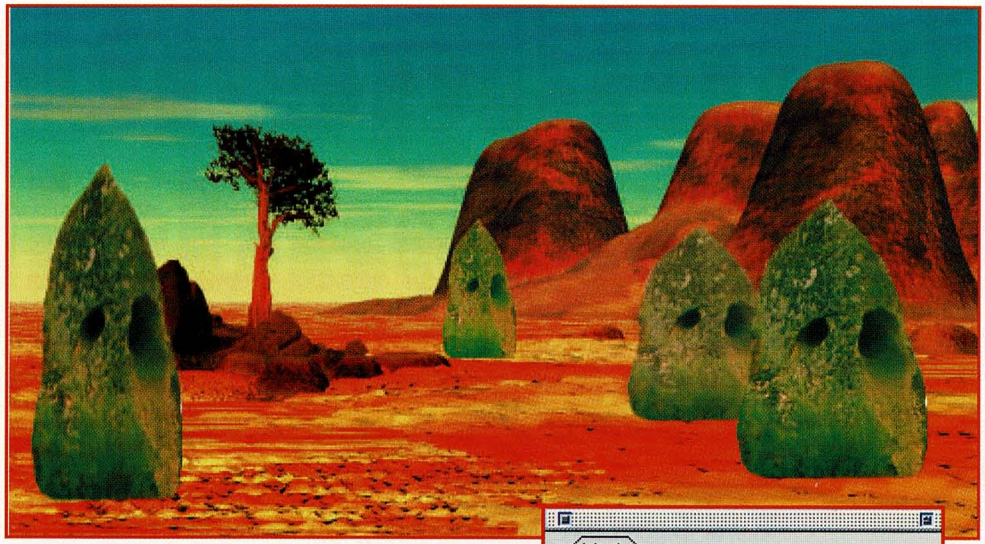
Upgrade!

We brought you Macromedia *xRes 2.0 SE* on the MACFORMAT 47 Cover CD (UK and Europe only). It's a complete, fully-working professional quality image editor, with all the tools you need for most tasks.

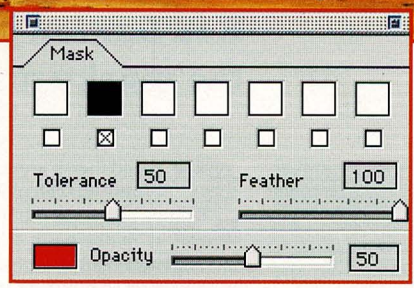
The latest version, v3.0, however, has additional specialist functions such as CMYK separations, path support, and a whole lot more.

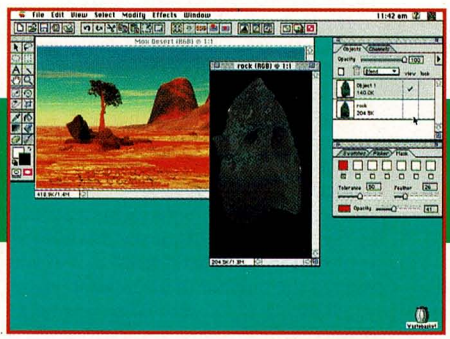
If you find you like the *xRes* approach, you can upgrade to this new version for a very special price through MACFORMAT. Upgrading to *xRes 3.0* will cost just £149, while Macromedia's complete *FreeHand Graphics Studio 7.0* is just £249! This includes not just *xRes 3.0* and *FreeHand 7.0* but also the powerful 3D package *Extreme 3D 2* and *Fontographer 4.1*, the industry-standard font creation tool, plus 10,000 clip art images, 500 TrueType fonts, and much more.

To order, call the Macromedia Order Hotline on 0181 358 5855 and tell them MACFORMAT sent you! (Offer open only to UK callers.)

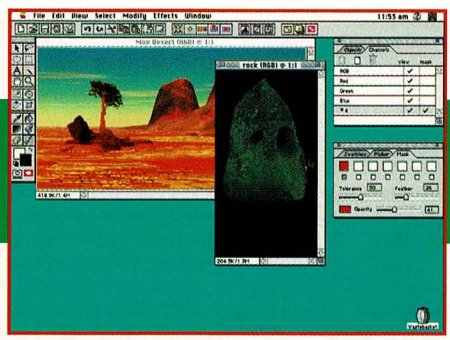


This is the finished image, with rocks dropped in, scaled and recoloured. Of course, there's nothing to stop you using the methods discussed here to drop any element into any background. *xRes 2.0 SE's* mask tools are very powerful, so try experimenting with images and techniques of your own. Look out for another step-by-step project next issue.

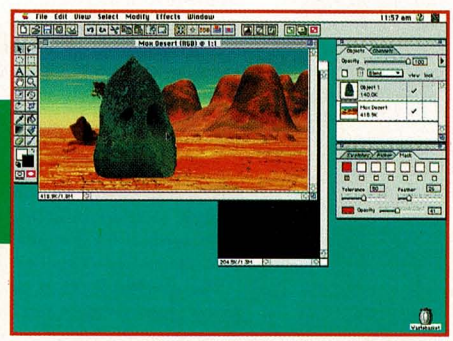




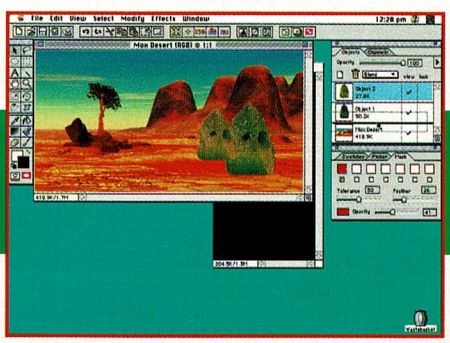
4 Let's check that our cut-out rock is neat enough. In the **Objects** palette, click on the tick in the **View** column next to the object named **rock.** Now you're only seeing the cut-out we've just created. The black area around the rock is called a mask, and it covers up the areas of the image that we don't want.



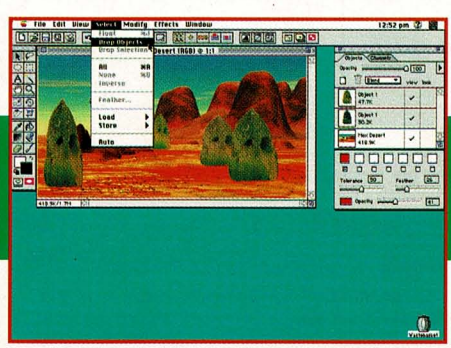
5 You can remove any white areas around the edge of the cutout by editing the mask. Click on the **Channels** tab. This shows the red, green and blue channels, plus a channel called **#4,** which is the mask. Click on this, then click in the **View** column next to **RGB.** Now you can use the paintbrush tool to paint in any rough areas.



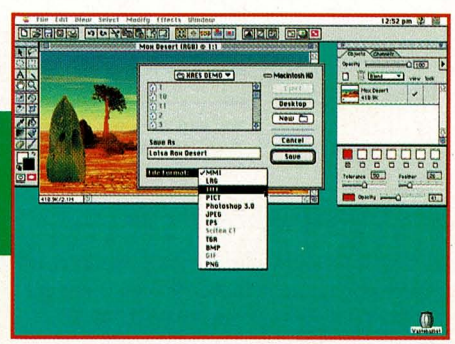
6 With the cut-out rock properly tidied up, it's time to place it into the background image. Click on the **Objects** tab again. **Object 1** – the rock – should be highlighted in grey to show that it's selected. Now click on the arrow tool in the toolbox, and simply drag the rock onto the background picture.



10 To make the new rock appear to be behind the original, drag its entry downwards in the **Objects** palette until it's between the first rock and the background – this changes the "stacking order". It's also a good idea to rename the new object. Double-click on its entry in the **Objects** palette, and type in a new name.



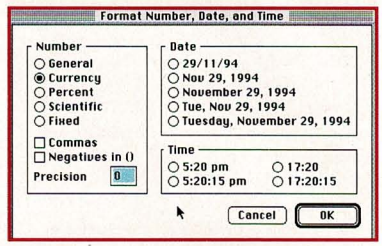
11 And here we are with a whole bunch of new rocks, created using the same methods. *xRes 2.0 SE* can only handle two floating objects at a time, though, so when you're happy with your objects' position, size and colour, choose **Drop Objects** from the **Select** menu – this will paste them into position permanently.



12 If you have floating objects in your image, *xRes 2.0 SE* can only save it in its own MMI file format. To get round this, select all the objects except the background by **[shift]**-clicking on their entries in the **Objects** palette, then go to **Select** and choose **Drop Objects.** Now you can choose one of many standard graphics file formats.

Intelligent spreadsheets

You can make good use of spreadsheets for a surprising number of everyday tasks – including household budgeting. Rod Lawton puckers up and delves into the murky mathematical world...



ClarisWorks' Currency format can round numbers to the nearest penny, or even pound. But with the ROUND function you can choose your own level of precision.

Call Jim

A *ClarisWorks* spreadsheet can also make a very powerful contacts database. With two columns of data – one for names and one for telephone numbers – and the **LOOKUP** function, you could type in a name and have a corresponding telephone number displayed practically instantaneously.

Spreadsheets are more than just grown-up calculators. As well as handling the full spectrum of mathematic, trigonometric and statistical calculations, they can be programmed to make decisions based on the results of calculations.

These "decisions" can be as simple as deciding how to round up a number to the accuracy you want, or as complicated as choosing the formula to apply, looking up data and even running the right macro for your circumstances. This isn't the province of high-flying professional spreadsheets like *Excel*, either, because all of these tools are built into the spreadsheet application that just about every Mac owner has – *ClarisWorks*.

The simplest form of "artificial intelligence" a spreadsheet can display is the ability to round up numbers to the nearest digit. For example, you might carry out a financial calculation that results in the figure 13488.9243 (pounds). This result is too accurate, though (unless you want to deal with hundredths of a penny).

You can fix this without complex formulae by setting the cell format to **Currency** (choose the **Number...** option on the **Format** menu to get the Format dialog), and then choosing **Precision.** Setting it to "2" will display pounds and pence, while setting it to "0" will round the figure to pounds only.

But what if you only want an estimate to the nearest hundred pounds, or thousand pounds? You can get your *ClarisWorks* spreadsheet to do this with the formula **=ROUND (number, number of digits).** To round the number 13488.9243 to the nearest thousand you'd use the following formula: **=ROUND(13488.9243;-3).**

The first part of the formula (13488.9243) is the number you're going to round. Usually, though, you'd insert another formula here ("formula", "expression" – you can use either term – a calculation based on other cells, basically). For example:

=ROUND(A1*B2/3;-3).

The second part of the formula, separated by the semi-colon (-3), is the precision you want the number displayed at. If you wanted the number to the nearest ten you'd use -1. If you wanted an accuracy of four decimal points, you'd use 4.

Note that this works relative to the decimal point. Even if the number was 45601.229, the result would still be rounded to the nearest thousand. And note that the **ROUND** function rounds up as well as down. For example, 1.445 will be rounded down to one, while 1.592 would be rounded up to two – in other words, it rounds the figure to the nearest digit.

This is in contrast to the **TRUNC** function, which simply strips away the decimal part of a number. The formula **=TRUNC(13488.9243)** will produce 13488. The **TRUNC** function isn't as

D5 =B5-C5

	A	B	C	D
1	Monthly budget			ABS function not used
2				
3	Category	Budgeted figure	Amount spent	Discrepancy
4				
5	Mortgage	£ 295	£ 295	£ 0
6	Electricity	£ 50	£ 53	-£ 3
7	Gas	£ 30	£ 39	-£ 9
8	Telephone	£ 15	£ 14	£ 1
9	Petrol	£ 60	£ 48	£ 12
10	Groceries	£ 400	£ 461	-£ 61
11	Clothes	£ 50	£ 56	-£ 6
12	Entertainment	£ 80	£ 32	£ 48
13	Misc	£ 200	£ 188	£ 12
14				
15	Totals	£ 1180	£ 1186	-£ 6
16			Average discrepancy	-£ 1

D5 =ABS(B5-C5)

	A	B	C	D
1	Monthly budget			ABS function used
2				
3	Category	Budgeted figure	Amount spent	Discrepancy
4				
5	Mortgage	£ 295	£ 295	£ 0
6	Electricity	£ 50	£ 53	£ 3
7	Gas	£ 30	£ 39	£ 9
8	Telephone	£ 15	£ 14	£ 1
9	Petrol	£ 60	£ 48	£ 12
10	Groceries	£ 400	£ 461	£ 61
11	Clothes	£ 50	£ 56	£ 6
12	Entertainment	£ 80	£ 32	£ 48
13	Misc	£ 200	£ 188	£ 12
14				
15	Totals	£ 1180	£ 1186	£ 152
16			Average discrepancy	£ 17

You can work out the difference between your budgeted figures for household expenditure and the actual ones – and then work out the average discrepancy. Use the **ABS** function for this, so that you don't get a misleadingly low average.

All or nothing?

There are two more logical functions related to the IF function. These are AND and OR. Whereas the IF function checks to see if just one expression gives a true or false answer, AND and OR work on whole bunches of them.

The AND function generates a "true" answer when every expression within the brackets is also true. Typically it would look like this: =AND(expression1;expression2; expression3;etc). if however, just one of the expressions inside the brackets proves false, the whole AND function would give the result "false". For example, =AND(1>2;94>93; 16<11) would give the result false because the third expression, 16<11, is not true (16 is not less than 11).

The OR function, by contrast, returns a "true" result if just one of the expressions inside the brackets is true. You can "nest" the AND and OR functions inside other functions in your cells to create quite sophisticated conditional structures. This can quickly get complicated, though, and you might like to use "chains" of simpler functions across a row of cells (for example), in much the same way as programmers link up simple code 'modules' to produce complex programs.

sample sprea			
4	×✓	=ROUND(13488.9243;-3)	
E	F	G	
	13000		

Use the ROUND function to control the precision that numbers are displayed with.

sample			
F4	×✓	=TRUNC(13488.9243)	
	E	F	G
4		13488	
5			

The TRUNC function simply removes any digits to the right of the decimal point.

smart as the **ROUND** function, since it merely removes the decimal part of a number. Don't use it to find the nearest integer (whole number) to a decimal number, because **TRUNC(1.112)** and **TRUNC(1.995)** will both produce "1".

Yah, absolutely

The **ABS** function is equally adept at working out which parts of a number you don't want. This function calculates the "absolute" value of a number. In other words, it converts every number to a positive number. Positive numbers remain unchanged, negative numbers are made positive.

What's the point of this? Well, imagine you're checking through the household accounts to see how closely you've stuck to your budgets for food, petrol, entertainment and so forth. It's easy enough to calculate the difference between the two figures and then work out an average discrepancy, but some of these figures are going to be positive (where you've overspent) and some will be negative (where you've saved money). These will tend to cancel each other out, leaving you with a misleadingly low average budget discrepancy. What you need to do, then, is calculate the absolute discrepancy between your budgeted

sample			
H4	×✓	=ABS(-456.1)	
G	H	I	
4	456.1		
5			

The ABS function generates a positive number, whether the original was positive or negative.

figure and the amount actually spent. And you do this with the formula **=ABS(number).**

Although rounding numbers up or down is semi-intelligent, we've seen already in previous issues that spreadsheets can choose between two alternatives depending on the outcome of a calculation. This is handled by the **IF** function.

To recap, the **IF** function has three parts, separated by semi-colons. The first is a "logical" expression – the result is either true or false. For example, A1>A2. If the contents of cell A1 really are greater than those of A2, the result of the expression will be TRUE. If not, the result will be FALSE. And that's where the other two parts of the IF function come in. The second part is the formula the cell uses if the result is TRUE – and the third part is the formula it uses if it's FALSE.

Imagine your household accounts are a bit volatile (that's not hard), and you don't know whether you should be booking your holiday in Provence or selling the family car. You can base your decision on how much money you have left over at the end of the month. Assume that the total of a "Budgeted figure" column represents your monthly earnings, and it's easy enough to compare that with the total for an "Amount spent" column.

We can now get our spreadsheet to give us one of two messages with the formula **=IF(total spent>total budget figure;"Sell the Car!";"Book the holiday!")** – obviously you'd substitute the actual cell references in the first part.

Not black and white?

That choice is a bit harsh, though. In our example, we're only £6 over budget and our Mac wants us to sell the car! It would be much better if it could make different suggestions based on the size of the overspend – and it can. One way would be to introduce lots of nested **IFs** in the formula (in much the same way as you nest **IF** statements when programming), but that would quickly get complicated and virtually impossible to visualise. Instead, you can use "lookup tables".

The principle is quite simple. If you want to match a comment with a number, simply create a column containing the numbers and, alongside, a column containing the relevant comments. The **LOOKUP** function will then take a number, trot over to the first column, get the comment from the corresponding cell in the second column and trot back to its cell with it.

So, for our household accounts spreadsheet we can set up a column of numbers (the amounts we might over- or under-spend) and, next to it, an appropriate comment for the software to make. The formula needed would be **=LOOKUP(over/under-spend;lookup range;corresponding range;method).** You'd substitute the "over or under-spend" part with a formula that worked out the difference between your budget and the total you spent that month. The "lookup range" and "corresponding range" need to be the same size and orientation – it's least confusing if they're simply side-by-side. The "method" part is the only bit left to explain...

ClarisWorks can either assume that the values you're looking up are in ascending order (in which case you put 1 here), or in descending order (in which case you put -1). These are useful if the value you supply isn't in its list and it has to choose the nearest one.

For now, though, you should use the final method – finding an exact match. To make *ClarisWorks* do this, simply put "0" in the final part of the formula. So, to use a real-life example, once you've set

C16	×✓	=IF(C15>B15;"Sell the car!";"Book the holiday!")		
	A	B	C	D
1	Monthly budget			
2				
3	Category	Budgeted figure	Amount spent	
4				
5	Mortgage	£ 295	£ 295	
6	Electricity	£ 50	£ 53	
7	Gas	£ 30	£ 39	
8	Telephone	£ 15	£ 14	
9	Petrol	£ 60	£ 48	
10	Groceries	£ 400	£ 461	
11	Clothes	£ 50	£ 56	
12	Entertainment	£ 80	£ 32	
13	Misc	£ 200	£ 188	
14				
15	Totals	£ 1180	£ 1186	
16		Course of action:	Sell the car!	
17				

Oh no! We're £6 over budget this month! We've got to sell the car! If we'd managed to stay within our budget, the IF function in that message cell would have told us to go ahead and book our holiday...

Over/Under-spend	Comments
£ 500	Book that holiday!
£ 400	Put some money in the bank
£ 300	Buy yourselves some clothes
£ 200	How about a takeaway to celebrate
£ 100	Not bad. Get some beer in
£ 0	Ooh, you were lucky
-£ 100	No more skittles on Friday nights
-£ 200	Had you thought about a lodger?
-£ 300	Send the kids to work
-£ 400	Don't buy any more food
-£ 500	Sell the car!

Lookup tables take one value and substitute it with another. Here, the LOOKUP function will find a value in the first (pink) column and then return the corresponding comment from the second (green) column.

up your lookup table, the formula you should use for your "comments" cell is **=LOOKUP(B15-C15;E4..E14;F4..F14;0).** Well, it nearly is. Because you're looking for an exact match in the lookup table, you need to make sure that the over and under-spend figure is exactly £100,-£300, £0 and so on (it's a simplified table that just works in multiples of £100). So you need your old friend the **ROUND** function to even up that over and under-spend figure, slipping it into the middle of your **LOOKUP** formula, which is now **=LOOKUP(ROUND(B15-C15;-2);E4..E14;F4..F14;0).**

It's not as bad as it looks. As with programming, everything in a spread sheet formula has to be typed correctly, and minor errors can stop them working at all. But once you understand how they're put together, it's much easier to get them right first time, and to find out what's gone wrong when they don't work. The logical **(IF)** and **LOOKUP** functions are well worth persevering with, because they can transform your spreadsheet from a lifeless bunch of figures into an interactive advisor that can tell you what you want to know in an instant.

MF

Macros

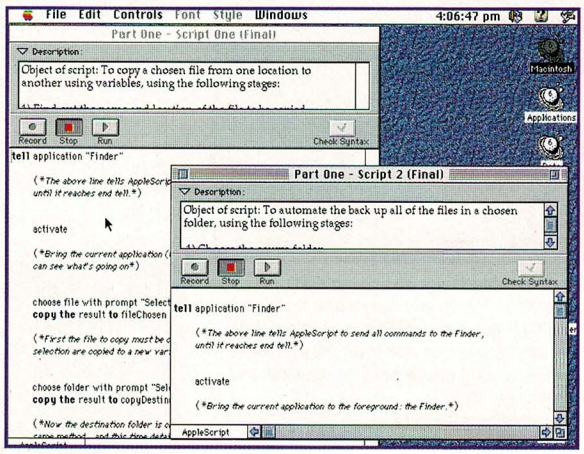
ClarisWorks spreadsheets even have a **MACRO** function – with the help of an **IF** or **LOOKUP** function, the software could run one of several different macros, depending on the outcome of a calculation.

C16	×✓	=LOOKUP(ROUND(B15-C15;-2);E4..E14;F4..F14;0)			
	A	B	C	E	F
1	Monthly budget				
2					
3	Category	Budgeted figure	Amount spent	Over/Under-spend	Comments
4				£ 500	Book that holiday!
5	Mortgage	£ 295	£ 295	£ 400	Put some money in the bank
6	Electricity	£ 50	£ 53	£ 300	Buy yourselves some clothes
7	Gas	£ 30	£ 39	£ 200	How about a takeaway to celebrate
8	Telephone	£ 15	£ 14	£ 100	Not bad. Get some beer in
9	Petrol	£ 60	£ 48	£ 0	Ooh, you were lucky
10	Groceries	£ 400	£ 461	-£ 100	No more skittles on Friday nights
11	Clothes	£ 50	£ 56	-£ 200	Had you thought about a lodger?
12	Entertainment	£ 80	£ 32	-£ 300	Send the kids to work
13	Misc	£ 200	£ 188	-£ 400	Don't buy any more food
14				-£ 500	Sell the car!
15	Totals	£ 1180	£ 1186		
16		Course of action:	Ooh, you were lucky		

And here's our finished "Home Accounts Advisor". It works out whether we've spent more or less than our budget and, via a lookup table, tells us what to do about it.

Automatic for the people

Carrying out boring, repetitive jobs is a waste of your time, and a job made easy with AppleScript. Nial Grimes shows you how to take full control of the Finder with a few simple commands...


File Edit Controls Font Style Windows
4:06:47 pm
Part One - Script One (Final)
Description:
Object of script: To copy a chosen file from one location to another using variables, using the following stages:
Record Stop Run
Check Syntax
tell application "Finder"
activate
choose file with prompt "Select
copy the result to fileChosen
choose folder with prompt "Sel
copy the result to copyDestin
Part One - Script 2 (Final)
Description:
Object of script: To automate the back up all of the files in a chosen folder, using the following stages:
Record Stop Run
Check Syntax
tell application "Finder"
(*The above line tells AppleScript to send all commands to the Finder, until it reaches end tell.*)
activate
(*Bring the current application to the foreground: the Finder.*)
AppleScript
Macintosh
Applications

The *Script Editor* is installed along with AppleScript – by typing a few commands here, you can have your applications at your beck and call.

Indented lines

Like most programming languages, AppleScript displays program code using indents to indicated "nested" commands. For example, commands within a repeat loop are indented to make the structure more obvious.

Important!

The ¬ symbol we've used in our scripting examples indicates that the instruction hasn't ended, but continues on our next line. When you see this, don't enter the ¬ symbol or press **[return],** but simply carry on typing.

Life with a Mac teaches you to abhor monotony. But there are times when even a slick operating system and a bundle of good applications can't shield you from a boring job. It might be sorting through a jam-packed folder looking for outdated files to archive and copy to a backup disk, or something else equally tedious.

The solution is sitting on your hard disk and it's called AppleScript. Unlike the scripting languages supplied with the likes of *FileMaker,* AppleScript allows you to give a list of commands to lots of different applications. Just think – learn to use AppleScript and you can control your whole Mac with just one language.

But before you can tackle any problems you do need to understand how the language works. To help you do that, we are going to design a practical script that can back up important documents. It is based on the Finder and will take the grind out of copying lots of files, ultimately deciding whether a file is worth backing up and, if it is, popping it neatly into a *StuffIt* archive.

The first stage on this mission is to use the Finder's **copy** command. Just like the Mac itself, AppleScript has been designed for human beings, not techno-heads. The easiest way to convince yourself of that fact is to start using it – and here is a script that introduces the Finder's **copy** command. Run the *Script Editor* and type the following into the window (AppleScript automatically emboldens certain words to help you understand the structure of your script):

```
tell application "Finder" to copy file "Note ¬
Pad File" of folder "System Folder" of startup ¬
disk to startup disk
```

When you've finished, click **Check Syntax** to make sure there aren't any major typing errors and then click **Run.** A copy of your Note Pad File will be copied from inside the System Folder to the top level of your startup disk. As you can see, AppleScript is very close to English in its appearance, but it does still need to be structured in the right way – this structure is called the syntax. Broken down into manageable chunks, the script looks like this:

- **tell** application "Finder" **to** – a script can work with any number of running applications, so you need to tell AppleScript which one to talk to: in this case, it's the Mac Finder.

- **copy file** <source> **to** <destination> – this is the actual "command" because it tells the Finder to do something. The **copy** command is the centre of the script, and it copies a file from the **<source>** to the **<destination>**.

AppleScript views files as objects. Just as you are the child of your parent, your System Folder is the "System Folder" of your startup disk.

But hang on, this first script isn't really that useful, is it? What we need is more flexibility. Making your program work with any file is easier than you think; it just needs a little help from some variables. A variable is a small "box" inside the computer that you can name and store things in. Setting one up is easy:

```
copy "Macformat" to magazineName
```

This line puts the text **Macformat** into the variable **magazineName** (it is a **copy**, not a **copy file** command, remember). Variables can hold text (which you must put in inverted commas, so that AppleScript doesn't think it's a variable name), numbers or even lists of information. For instance:

```
copy "Macformat", 911 to variableList
```

To use the word "Macformat" in a script, you could refer to item 1 of **variableList;** to use the number "911", you use item 2 of **variableList.**

Variables can even be used to store the location of a file or a folder. The secret is a command called **choose file** (or **choose folder)** which presents the standard file selection box:

```
choose file with prompt "Select file to copy..."
copy the result to fileChosen
```

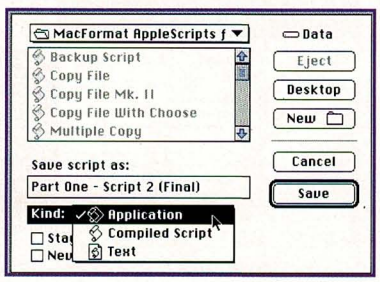
This presents a standard file selection box, with the text **Select file to copy...** at the top. Once a file has been chosen, AppleScript puts its name and location in a variable called **result**, which must be copied to a new variable immediately (otherwise the next command could overwrite it!).

Now you know how to select a file and know a bit about variables, you can write a new script that copies a chosen file. Start a new script and type the following into the window:

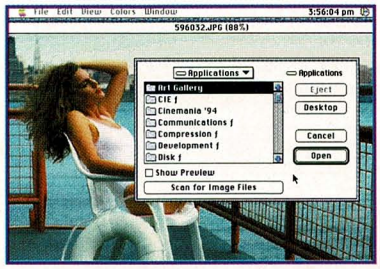
```
tell application "Finder"
  activate
  choose file with prompt "Select file to copy..."
  copy the result to fileChosen
  choose folder with prompt "Select ¬
  destination..."
  copy the result to copyDestination
  copy file fileChosen to folder ¬
  copyDestination
end tell
```

To see the script in action, click **Check Syntax** and then click on **Run.** First the Finder will be brought to the foreground, and you will then be able to choose a file, and a folder to put it in before the copy actually takes place. This script may look quite complicated compared to the first, but it's based on the same principle.

Choose file is used to put the name and location of the file to copy in a variable called **fileChosen;** next, **choose folder** puts the destination folder in a variable called **copyDestination.** The file is then copied using exactly the same



When you save your script as an application, it doesn't need the *Script Editor* to run!

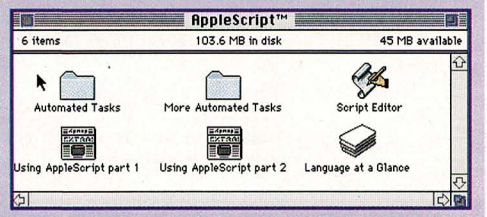


The choose file command summons up the standard file selection box – this is handy for putting filenames and their locations into variables.

Where can I find AppleScript?

AppleScript 1.1 is supplied with System 7.5, and it's this version that you will need to follow our tutorial. Take a look on your startup disk – unless you've been moving stuff around, you will find the *Script Editor* inside a folder called AppleScript in the Apple Extras folder.

If you haven't got AppleScript at all, you'll either need to upgrade to System 7.5 or buy *The Tao of AppleScript*, which includes all the bits you need on its accompanying disks. Contact Computer Books on 0121 7783333.



AppleScript is supplied with all current variations of System 7.5. Look for it in your Apple Extras folder.

method as in our first script, replacing the specific files with the variables **fileChosen** and **copyDestination.** You'll notice that the whole script has been "wrapped" with **tell** and **end tell,** which saves you having to type **tell application "Finder" to** at the beginning of each line. **Activate** is used to bring the Finder into the foreground, so you can see what's going on.

Using variables is a big step: it means that the backup script, or any other Finder script for that matter, isn't limited to specific files. What we need, though, is some more automation...

Going loopy!

The real power of scripting comes through automation – it's the difference between getting *Photoshop* to adjust one image through a script, or 20, or the backup script copying a single file and lots of files. The **repeat** command makes it easy to automate boring tasks. For instance, the following little snippet would repeat ten times whatever commands you put in the middle:

```
repeat 10 times
  -- Put commands here
end repeat
```

This is called a loop, because when AppleScript reaches **end repeat,** it loops back around to the top until it has been through every command ten times.

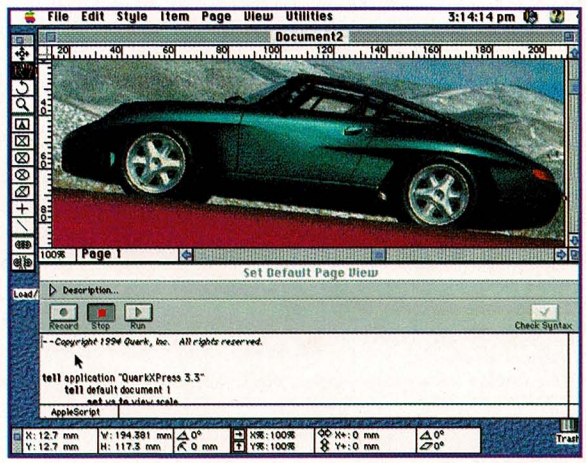
For this loop to be truly useful, though, we need to keep a count on the number of times it repeats, and we can do it like this:

```
repeat with counterName from 1 to 10
  -- Put commands here
end repeat
```

This version of **repeat** is very powerful. Here the commands are repeated ten times again, but **variableName** stores the number of times you've been through the loop: the first time through, **variableName** contains 1; the second time through it contains 2, and so on. This is just what we need to help our backup script to deal with a whole folder full of files. Choose **New Script** from the **File** menu and type the following:

```
tell application "Finder"
  activate
  choose folder with prompt "Select source ¬
  folder..."
  copy the result to folderChosen
  choose folder with prompt "Select ¬
  destination folder..."
  copy the result to copyDestination
  list folder folderChosen
  copy the result to copyList
  repeat with fileCount from 1 to the ¬
  number of items in copyList
    copy item fileCount of copyList to ¬
    currentFile
    copy file currentFile of folderChosen ¬
    to folder copyDestination
  end repeat
end tell
```

Now that you've entered the script, click **Check Syntax** and then run it. The Finder will be brought to the foreground, and you will be asked to choose source and destination folders. Make sure the source folder you choose doesn't contain any folders, because you haven't taught it to handle that yet. The script will now go through each file individually, copying it to the destination – it's automated and it's labour-saving.



AppleScript can automate tasks in many different applications, including *Photoshop 4* and *QuarkXPress*.

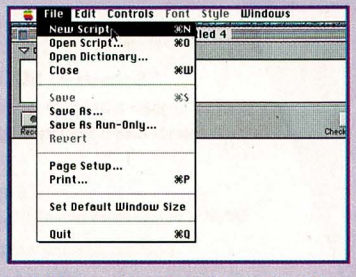
How does it work? Well, first the source and destination folders are put into the variables **folderChosen** and **copyDestination;** next, a new command and called **list folder** is used to put the files to copy into a variable called **copyList.** Now the interesting bit: the **repeat** loop runs as many times as there are files to copy – **fileCount** is used as a counter. On the first pass through the loop, item 1 of the **copyList** is put in a variable called **currentFile.** You now have the filename of the file you want to copy and its location, so it's just a case of copying **currentFile** of **folderChosen** to **copyDestination.** On the second pass ➤

In the script?

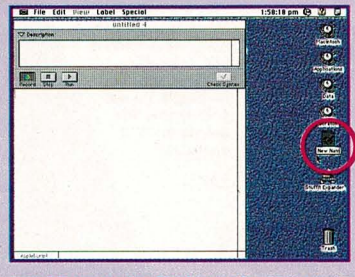
Not all Macintosh applications are "scriptable", but most recent releases will allow a high degree of AppleScript control. Stick with us to find out how it's done.

Exploring new commands...

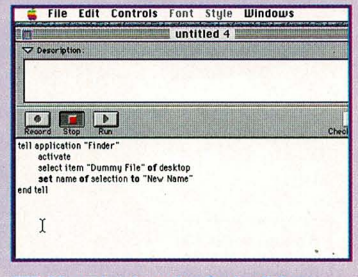
This month's tutorial has shown you how to use the copy command, but how can you find out how to do other things with the Finder? Easy – allow the *Script Editor* to show you. For instance, to learn the commands for renaming a file, try the following...



1 **Choose New Script from the File menu in the *Script Editor*, and then click the Record button.**



2 **Move to the Finder and rename an unimportant file by clicking on the text beneath its icon.**



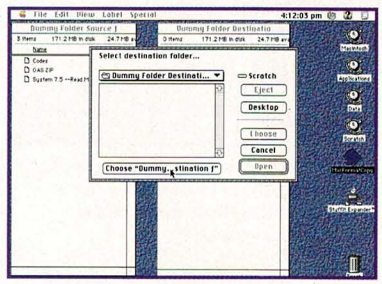
3 **Move back to the *Script Editor* and press the Stop button to see the commands for renaming files.**

through the loop, item 2 of the **copyList** is put into **currentFile,** and the process continues until all the files have been copied. Look at the scripts on the Cover CD to see repeat loops in action.

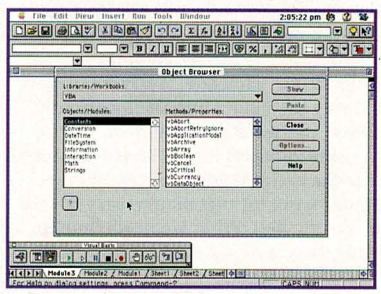
The final hurdle

Well done – you've actually got a useful script, so choose **Save As...** from the **File** menu in the *Script Editor*, select **Application** from the pop-up menu, call your script **MacFormatCopy** and save it on the Desktop.

Our script is already advanced enough to adapt to the number of files it finds within a folder. However, at the moment it's still not that intelligent. What we really need is a way for the script to make decisions – whether a file is new enough to be backed up, for instance – and that's what we'll be looking at next month. From there, it's just a short step to controlling other applications... **MF**



The backup script in action – each file is copied from the source folder on the left, to the destination on the right.



AppleScript is far more flexible than its application-specific rivals, because it can work with several applications at once.

The command performance...

Here are the commands used this month:

tell application "<application name>"
-- Put commands here
end tell
Use the above commands to start and finish talking to an application.

activate
Brings the current application to the foreground.

copy <source> to <destination>
This copies data from one place to another. In this month's tutorial we use the Copy command to copy one variable to another.

copy file <source> to <destination>
This copies a file in the Finder. You can refer to files as objects or use the locations returned by the Choose File or Choose Folder commands.

repeat with <variableName> from <number> ¬ to <number>
-- Put commands here
end repeat
As the name suggests, repeat forces AppleScript to run a list of commands several times. The with variable is used as a counter.

list folder <folder>
List folder gets the names of all the files in a folder and puts them in a list variable called result.

choose file/choose folder with prompt ¬ "<Put prompt here>"
This presents the standard file or folder selection box with a prompt (or title) at the top. The file or folder and its location are put in a variable called result. You need to transfer this information to a variable of your own straight away.

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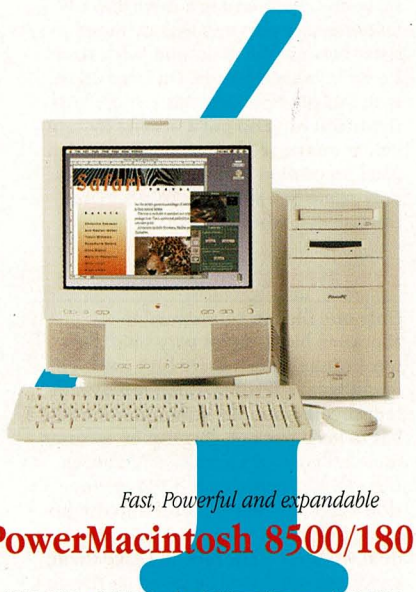

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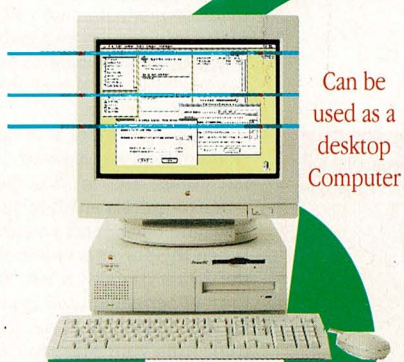

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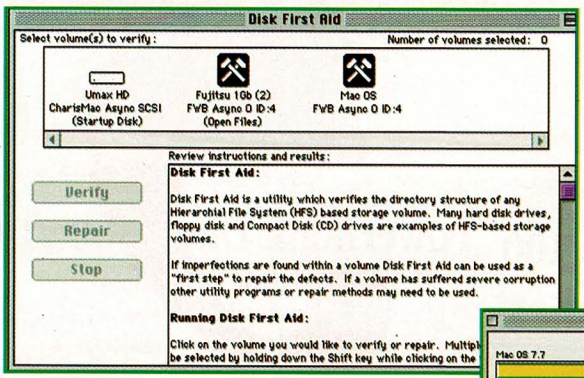
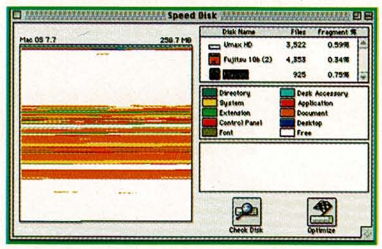
Safe and sound?

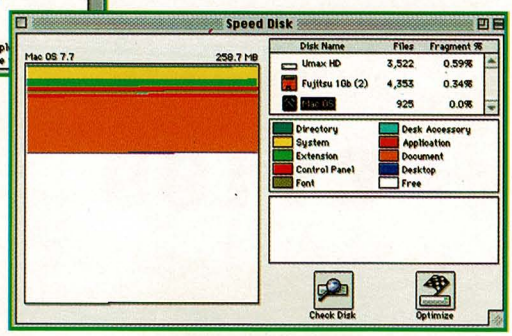
You trust your Mac to keep your files safe, but sometimes problems occur that put them in danger. Lindsay Bruce explains what these problems are and how to avoid them.


Disk First Aid
Select volume(s) to verify:
Number of volumes selected: 0
Umax HD
CharisMac Async SCSI
(Startup Disk)
Fujitsu 1Gb (2)
FWB Async 0 ID:4
(Open Files)
Mac OS
FWB Async 0 ID:4
Review instructions and results:
Disk First Aid:
Disk First Aid is a utility which verifies the directory structure of any Hierarchial File System (HFS) based storage volume. Many hard disk drives, floppy disk and Compact Disk (CD) drives are examples of HFS-based storage volumes.
If imperfections are found within a volume Disk First Aid can be used as a "first step" to repair the defects. If a volume has suffered severe corruption other utility programs or repair methods may need to be used.
Running Disk First Aid:
Click on the volume you would like to verify or repair. Multiple
be selected by holding down the Shift key while clicking on the
Verify
Repair
Stop

Disk First Aid **comes with every Mac and you should use it regularly to check over your Mac's hard disk for errors – it could save you a lot of heartache.**



Speed Disk **(part of *Norton Utilities*) enables you to defragment files on your hard disk to keep it running in tip-top condition. This is before defragmenting...**



... And this is after. *Speed Disk* will also prioritise files into groups so that all the System files are in one place. This helps your Mac start up faster and prevents fragmentation in the first place.

There are two types of storage – temporary and permanent. The temporary variety holds items for brief periods of time, and you can retrieve them quickly and easily. Permanent storage is where you put items for safe keeping for rather longer periods of time. A good analogy would be the average person: you store much of the information you gather in your brain, but if you want to use the information later, you'd probably write it down somewhere.

Computer storage is similar. RAM (Random Access Memory) is extremely fast storage used for data that needs to be accessed quickly – this includes program code and documents you are working on. When the power is switched off, though, the data it contains is lost. The usual form of permanent storage on a computer is the hard disk drive. It holds everything from your Mac's System software to application programs and documents. When your Mac needs information, this is the first place it'll look. But how does it all work, and what do you do when it doesn't? Knowing how your Mac deals with storage and files can help you fix things when they go wrong.

In the computer world, storage is measured in bytes. One byte can store one character and one kilobyte (K) is enough to hold about a page and a half of text. However, most Macs these days come with a one gigabyte (Gb) or larger hard drive, which can in theory hold 1.6 million pages of text.

All drives (except CD drives) work along the same principles – data is stored as magnetised particles on the surface of a circular disk called a **platter.** Data is written to the disk by changing the magnetic polarity of individual particles to represent the "zeros" and "ones" that form computer data. This is done by a "read/write" head, which floats just above the disk surface.

Data on the platter is stored in tracks, and the read/write head is mounted on an arm that can position the head over any track on the disk. Manufacturers may quote "seek" and "access" times for drives, to give an indication of their speed. The "seek" time of a drive is the time it takes the head to move across one third of the tracks, expressed in milliseconds (thousandths of a second) – the faster the better. The "access" time of a drive is the time it takes to access data in a specific sector on the disk – again, the faster the better. Access times vary from 25 milliseconds to 5 milliseconds depending on the drive. Between 5 and 10 is quite good, while less than 5 is exceptional and displayed only by high-performance hard drives.

Before you can use any disk to store data, though, it has to be prepared. This is a two-step process. First, the disk is formatted – divided into equal chunks known as **sectors** – usually 512 bytes in size. These sectors are then numbered so that the drive knows exactly where to find specific data. The number of sectors on a disk depends on its size, but it's not uncommon for them to have several million. Then, once it's formatted, the drive has to be "initialised" (prepared so that your Mac can store files). The Macintosh uses a unique system known as **Hierarchical File System (HFS)** for storing and retrieving files. Keeping track of millions of sectors is an arduous task, so the Mac groups sectors together into chunks called **allocation blocks,** to reduce the amount of "paperwork" it has to do. The Mac can only deal with around 65,000 blocks, so the larger the disk, the larger the allocation block size.

Your Mac's hard disk is normally used as a single drive – it has a single HFS "partition". But with special formatting software, you can change this to create as many separate partitions as you like. This is handy, as the Mac treats them as different drives even though they are on the same disk. Partitioning a drive into two volumes may give you slightly more space because the allocation block size for each volume halves. On large drives with lots of small files, this is more efficient. You can also put a backup System Folder on the second partition – this is a good precaution as most disk problems only relate to a single volume and not the disk as a whole.

Fragmentation

Only one file can be assigned to an allocation block, so for very small files, some of the block's space isn't used. This might seem a terrible waste, but by reducing the number of blocks your Mac has to keep track of, files can be accessed more quickly – it's a trade-off between capacity and performance. When you save a file, the Mac writes it into the first space it finds on your hard disk. You may then work on other files and save them, and these could well be saved on the disk alongside your first file. If you now go back to expand the original file and re-save it, your Mac runs into a bit of a problem because the space next to the file on the disk is already in use. To get round this, the Mac writes the additional information elsewhere on the disk and notes that the file is now in two pieces and where each piece can be found.

This is known as **fragmentation**, and it's common for files to be in dozens of pieces spread all over your disk. Retrieving these bits takes time and requires a lot of effort on the drive's part, shortening its lifespan slightly. All drives will have a small degree of fragmentation, but when it affects 10% or so of your files, you'll find your Mac getting slower

Bits and bytes

How much is a Mb? There are 8 bits in one byte (one byte is one character), 1,024 bytes in a killobyte (K), 1,024K in a megabyte (Mb), and 1,024Mb in a gigabyte (Gb). That means that a 1Gb drive will – logically speaking – hold 1,073,741,824 bytes of data – around 268,435,456 words!

as it spends more time searching for a file's constituent parts. The solution is to use a defragmentation program such as *Speed Disk* (part of *Norton Utilities*, £76 from MacLine on 0181 401 1111). This program **defragments** the disk by re-joining the portions of each file and writing them to a new location in one continuous block – thus both speeding up the file-opening process and increasing the life expectancy of the drive.

Additionally, your Mac will quite frequently come across corrupted data. Perhaps your Mac crashed as it was writing to the disk, or a spike in the mains power caused an error, or the drive got a sudden knock. Disk errors are most often found in the Mac's file-tracking database – the files on the disk that keep track of where data is stored. This is simply because these files are accessed the most often. Your Mac keeps backups of these files, so if it runs into a problem with the original, it'll use the backup. However, the Mac will not tell you about these problems, and it's up to you to keep an eye out for errors using *Disk First Aid*, which comes with every Mac. You should run this regularly to check over your disks and keep them free from defects. If you don't, the first you'll know of a serious problem will be when you can't open one of your files!

Norton Utilities is a package which can defragment, repair, and back up your hard disk as well as recover accidentally deleted files. It's far more comprehensive than *Disk First Aid* and well worth investing in if you value your data.

Extra storage

All Macs use a peripheral connection system known as SCSI (Small Computer Systems Interface), which enables you to connect external devices (usually storage devices, but also scanners) to the Mac. With the exception of the Performa 630, PowerPC Performas and PowerBooks, which use cheaper IDE-based drives, all desktop Macs come with a SCSI internal hard drive. In the last three years, nearly all Macs have also been provided with a SCSI CD-ROM drive as well. SCSI enables a total of eight devices, each with its own unique ID number, to be linked together and "talk" to each other. The Mac uses ID 7, and the internal hard drive uses ID 0. This leaves six free places on the chain for connecting additional drives. If your Mac came with a CD-ROM drive fitted, this will be set to ID number 3.If your internal hard drive is IDE-based, then SCSI ID 0 will be left free for use.

On the back of the Mac you'll find the SCSI port, a wide connector with 25 pins. Most drives and scanners come with two 50-pin SCSI ports, so to connect the drive to the Mac you'll need a 25-pin-to-50-pin SCSI connection cable – this is usually supplied with the device when you buy it. Connecting more than one device to the Mac means daisy-chaining devices together using the spare SCSI connections on the back of each device. This will most likely require a 50-pin-to-50-pin SCSI cable. If you ask your dealer nicely, they may provide you with this when you buy the drive. If they can't, you'll need to but it separately, and it will cost you between £15 and 20.

SCSI IDs and daisy-chaining

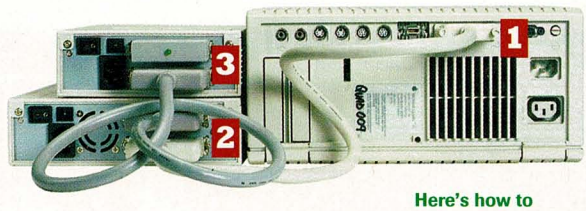
If you're connecting multiple SCSI devices to the Mac, make sure that all the devices on the SCSI chain have unique ID numbers. You can use *SCSI-Probe* (on this issue's Cover CD) to check which numbers are already in use. Most drives have a selector switch on the back that can be set from 0 to 6, but some of the portable drives may only give you a choice of two IDs.

Each end of the SCSI chain must have a terminator fitted to prevent signals reflecting back along the chain and "muddying" the data – your Mac is terminated internally, so you only need to worry about external devices. Most drives come with a terminator block that fits into the unused SCSI port on the back of the last drive in the chain. Some drives, though, use internal or "active" termination, which negates the need for a terminator block – you'll need to check which your drive uses (look in your original documentation).

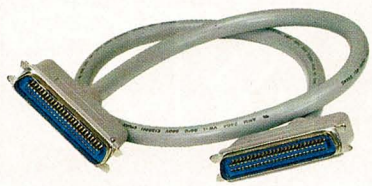
All SCSI devices require a software driver (program) that enables your Mac to talk to them. Without it, your Mac will not recognise what type of drive it is and it won't mount on the Desktop. For hard drives, the driver software is placed on the drive itself when it is initialised – but for removable drives, the driver software must be installed in your System Folder. Again, most drives come bundled with appropriate driver software from the manufacturer, but if yours didn't, you'll have to buy it separately.

If you are connecting a second drive to your Mac, you should use the newer driver software for *both* drives. Most driver packages cover a broad range of drive types, and you may find each package has loaded its own driver for each device on the SCSI chain! If you have more than one removable drive connected to your Mac, unless otherwise stated in the manual, install the newer driver version over the older one.

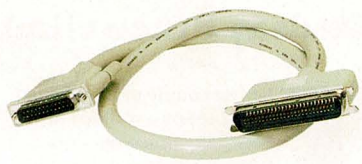
If the Mac can't find its internal hard disk at startup, then unless you have an external drive connected with a System Folder on it, you'll get the dreaded "blinking question mark". In this case you should start up from the **Disk Tools** floppy or **System CD** – whichever came with your Mac – and try running *Disk First Aid* over the internal hard disk. If that doesn't work, check that the drive connections inside the Mac are secure. Failing that, it's time to get an Apple Authorised engineer to look at it. **MF**



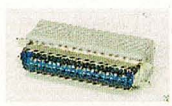
Here's how to daisy-chain two drives: the first drive is connected to the Mac (1), the second drive on top connects into the back of the first drive (2), and a terminator is plugged into the last SCSI connection on the last drive (3).



Connecting more than one external SCSI device to the Mac means daisy-chaining them, which requires one of these – a 50-pin-to-50-pin SCSI cable.



To connect an external SCSI device to your Mac, you'll need one of these – a 25-pin-to-50-pin SCSI cable. Most drives and scanners come bundled with one.



Make sure you get a terminator with any SCSI device. It prevents data reflections back along the SCSI chain – these can stop your Mac starting up. Some devices have them built-in already, though, so check before you buy.

Steer away

Driver software is expensive (typically £60 or more), so it's important to find out whether it's included when you're buying a disk drive. If it's not included, you should think hard before parting with your money.

Troubleshooting

The most common complaint relating to drives – especially removable drives – is that they won't mount on the Desktop. This means your the Mac isn't recognising them. When this happens, here's what you do:

1. Check that the drive has power and is switched on. External SCSI devices must be switched on before the Mac is started in order to be recognised. Incidentally, you must never connect or disconnect SCSI devices when either they or your Mac are switched on – it could damage the SCSI bus.

2. Check that the drive has a unique SCSI "ID" (sometimes called a SCSI number). If you're unsure about this, use a utility such as *SCSI Probe*, which will tell you what devices are connected to the Mac, and which ID numbers are free.

3. Check that the connection cables between the drive and your Mac are secure. A loose connection or a dodgy SCSI cable will stop your Mac from communicating with the drive.

4. Has the cartridge been formatted? If not, you may have to use the formatting software supplied with the drive (if there is any) before the cartridge will mount.

5. Make sure that the driver software for the drive is properly installed. Without this, the Mac will not be interested in trying to mount the drive on the Desktop.

6. Is the cartridge damaged? If the Mac can't find a legitimate HFS partition on the drive, it either won't mount it or it will tell you it can't be read. In this case, use a disk repair program like *Disk First Aid* or *Norton Utilities* to check the disk over.

Got a problem? Need assistance? Never fear, MacAnswers is here! Read on for your guide to a hassle-free, Mac-happy world. Lindsay Bruce climbs inside your Mac and reveals all...

New System

The latest news from Apple is that the next major revision of the Mac OS, System 7.6, should be shipping before the end of February. System 7.6 (code-named Harmony) brings together many of the technologies Apple has been working on in the last two years, including Open Transport, OpenDoc, Cyberdog, QuickDraw 3D, and QuickTime VR. For more details on System 7.6, take a look at Apple's Web site at **http://www.apple.com/**

The last couple of months in the MACFORMAT office have been very much operating-system-orientated. First, we acquired a beta version of System 7.6, AKA Harmony, to look at (full review coming when we get the final version). Then, just before Christmas, Apple dropped the bombshell that it had bought ex-chairman Steve Jobs's company, NeXT Software, with the intention of porting its operating system, NextStep, to the Mac as its next generation operating system. Then, at Macworld Expo in San Francisco, Apple showed off some of the key technology in Tempo, yet another revision of the OS due out this summer. Finally, at around the same time as Gil Amelio was outlining plans for the next OS, yet another alternative operating system for the Mac arrived in our post bag – BeOS.

If you're feeling a tad confused at this point, join the club. Life used to be simple. You had a single floppy disk containing all the System software your Mac needed. Ten years on, that floppy disk has turned into three or more different operating systems all requiring 100Mb or more of precious hard disk space. All promise to make you more productive and your Mac crash less often. Hmmm, does this strike anyone else as a bit of a fairy tale?

In the meantime, if you're still struggling on with System 7.5 and below, MACFORMAT presents its friendly trouble-shooting clinic, MacAnswers. If you have a problem, operating system-based or not, send in to us at MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW, or e-mail us at **macformat@futurenet.co.uk** with "MacAnswers" in the subject title. Alternatively, you can fax us on 01225 446019, but write MACFORMAT clearly at the top so it gets forwarded to us. Sorry, but we can't reply to correspondence personally, because we're busy trying to work out how to get our Macs running the right operating system again.

Harder to kill than James Bond: the demo of *Now Startup Manager* on MACFORMAT 44's Cover CD puts files all over the System Folder. To get it off your system, *all* the files have to be removed.

Electronic Registration Form
Now Software
Please take a moment to complete this registration form for Now Startup Manager.
As a registered user you will receive free technical support from our friendly support staff, free notification of upgrades, and special discounts on other Now Software products like Now Utilities and Now Up-to-Date & Contact.
After completing this form, you can print the information, then FAX or mail it to us; if you have a modem, you can send the information to us toll-free. Modem transfer takes only about one minute.
Already Registered
Register Later
Register Now...

Out to lunch

Extensions

Q *I recently installed **Now Startup Manager** from your Cover CD, but didn't use it as I was new to Macs. But it now seems to have expired and taken my Extensions Manager with it – it's no longer in the Control Panels folder! Also, when I try opening Apple Guide from the **Help** menu, I get an error message saying "Apple Guide could not be opened because AppleScriptLib could not be found". What do I do?*

R Cleall
Rochester, Kent

A *Now Startup Manager* is unlikely to have removed the Extensions Manager from your Mac. It's probably simply disabled it by moving it into another folder. The quickest way to locate it is to choose **Find** from the **File** menu and type "Extensions Manager". Click **Search** and your Mac will hunt through your hard disk to locate the missing Control Panel. If it finds it, simply move it back into the Control Panels folder within the System folder.

You'll also need to make sure the EM Extension is in your Extensions folder. The Extensions Manager needs this Extension to interrupt the startup process if you want to change Extensions during startup (hold down the **[space bar]** during startup). If your Mac still can't find the Extensions Manager, then it may have been over-written – you must also remove all traces of *Now Startup Manager* from your System folder. You'll find these items within your System Folder:

- Control Panels: *Now Startup Manager, Now Startup Manager* Guide;
- Extensions: NSM Toolbox;
- Preferences: Now Utilities Prefs;
- Startup Items: Register *Now Startup Manager* alias.

Move these, and the *Now Startup Manager* folder on your hard disk, to the **Wastebasket,** or a folder on your Desktop. Then reinstall your System from your System CD. This should restore your entire System Folder including the Extensions Manager.

Apple Guide is Apple's easy-to-use online help system, which has an expandable architecture so that developers can add help files for their own applications. Apple Guide is composed of several files buried in the Extensions folder inside your System Folder. One contains the core of Apple Guide while the rest are "guide files" containing the actual help information itself.

The whole lot is strung together using AppleScript, a basic scripting language that can launch documents or applications automatically. Apple Guide uses AppleScript extensively, and needs the

Upgrading an existing CD-ROM drive is not really practical – at the end of the day it costs less to buy a brand new one.

AppleScript Extensions installed to work at all. Have a look in your Extensions folder and make sure that AppleScript, AppleScriptLib and Finder Scripting Extension are present. In System 7.5.1, AppleScriptLib is part of the AppleScript Extension, but in System 7.5.3 and higher, it's a separate file. If you don't have these items in your Extensions folder, they may have been disabled in some way. Use the **Find** command under the **File** menu to locate them and drag them back into the System Folder. Failing this, try reinstalling them from your original System disk.

Faster-than-light

Upgrading a CD-ROM

Q *I have an LCIII running System 7.1. My current CD drive is single-speed. Recently I've had problems with newer software that requires a faster drive. Is there any way I can buy the CD drive as an update and fit it into my existing casing?*

Robin Hickin
Long Itchington, Warwickshire

A Lots of multimedia and games software these days (including some of the demos on our Cover CD) requires a double-speed CD-ROM drive or faster. You can, in theory, upgrade your existing drive by fitting a new drive mechanism – but in practice, this can be fraught with problems and may not be any cheaper than buying a whole new CD drive, including the case.

Since you're running System 7.1, the Apple CD driver Extension in your System Folder won't support the new, faster CD-ROM drives – it'll only support models running at up to double-speed. Since the slowest CD-ROM drive you can buy these days is eight-speed (and even these are hard to find), the likelihood is that the drive won't be interested in working with your Macintosh.

The solution is to get hold of the newer driver – the current version is 5.3.1, and is part of System 7.5.5, but you can download a slightly older but workable version (v. 5.1.7) from the Internet at **ftp://ftp.info.euro.apple.com/Apple.Support.Area/Apple.Software.Updates/US/Macintosh/Display-Peripheral/**

If your CD-ROM drive is not from Apple, though, this won't work. In this case, you'll have to buy a CD-ROM driver utility separately, such as *FWB CD-ROM Toolkit*, which will cost you around £63 (contact Softline, 0181 401 1234).

Now all you have to do is fit the drive itself into the case, and this is where the trouble really begins. Drive specifications have changed over the last couple of years, and it may be that the connector types which hook your existing mechanism up to the rest of the drive aren't compatible with the new ones. The power and data connections haven't changed, but the SCSI selector connections probably have.

Most drives, though, can be configured using jump pins on the mechanism itself – but unless you get specific instructions with the drive, working these out is going to be a process of trial and error. This kind of work should really be done by an engineer with the correct tools and technical information. And at the end of the day, this is a hell of a lot of hassle to go through just to get a faster drive – it'll probably end up costing you just as much as a whole new unit, yet the latter would come complete with up-to-date driver software and SCSI cables. CD-ROM drives tend to start at around £200 for the current 10 or 12-speed versions. Only if you can't afford this and don't need a drive that fast should you shop around for older drives.

Trouble-shooting keystrokes

Having a few keystrokes up your sleeve is incredibly handy when you run into trouble, and it makes you look dead flash in front of all your mates in the office. Ahem... yes.

Startup keystrokes – hold down during Startup
[shift] Turns Extensions off.
[command] [option] Rebuilds the Desktop files.
[command] [option] [shift] [delete] Forces your Mac to start up from a disk other than the internal hard drive (assuming you have another disk with a System Folder on it).
[command] [option] P R Zaps the PRAM (Parameter RAM – a chip inside your Mac which stores the date, time and some details about your Mac's hardware).
[command] [option] T V Switches your Mac's screen display from the monitor to a connected television set (Audio Visual Macs only).

That old 32-bit feeling

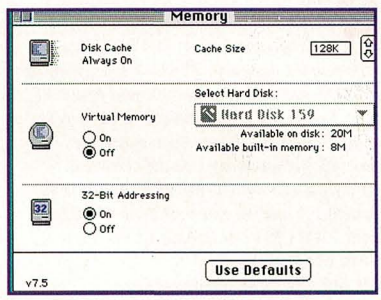
32-bit addressing

Q *I have an LC and recently fitted an extra 8Mb of RAM in it to give me a total of 10Mb. I now find that the System software takes up twice as much memory as it did before, yet I haven't changed anything! I don't use virtual memory and I haven't got 32-bit addressing switched on, as most of my programs seem to crash when I do.*

Andrew Burson
Verteillac, France

A This is a common problem when you're installing more memory in older Macs. In a nutshell, your Mac cannot use more than 8Mb of RAM without 32-bit addressing switched on. (Without 32-bit addressing, it can't generate enough memory addresses to "map" more than 8Mb of RAM.) The operating system, though, is smart enough to recognise that there is more than 8Mb of RAM installed in the machine, even though it can't "see" it. So it assumes something must be using that extra memory, and shows it in the "About This Macintosh" box as part of the System heap. Your System isn't *really* using any more memory than before.

The only solution is to turn 32-bit addressing on. If this is causing problems for older software, then you must either upgrade to newer versions of these programs or switch 32-bit addressing off and restart your Mac when you want to use the problematical software.



Some of the older 68K based Macs use an older memory-addressing scheme that doesn't allow them to use more than 8Mb of RAM.

xRes revisited

Last issue we gave you the complete *xRes 2.0 SE* on a bonus CD (UK and Europe). Since then, several readers have contacted us to ask where to find the serial number that the program asks for. It's in a ReadMe text document in the **xRes** folder on the CD named "Important". The moral of the story: it *is* worth reading the documentation when you install anything!

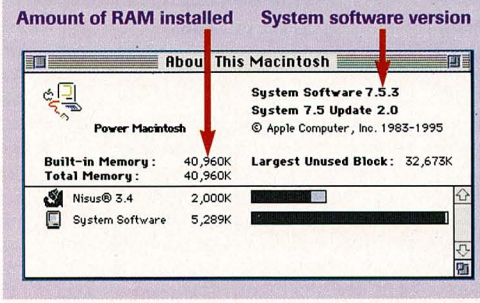
The do-it-yourself problem-solving guide...

One of the most common causes of problems on your Mac is Extensions or Control Panels clashing in your System Folder. It's easy to check if this is the case. Restart your Mac and hold down the [shift] key. Release the key when you get the message, "Welcome to Macintosh. Extensions off." If everything now works, then the problem is likely to be an Extensions conflict.

The only way to work out which item is the culprit is by trial and error. Remove a few Extensions or Control Panels, then restart your Mac, without holding down [shift]. Keep on doing this until the problem no longer occurs and you've found the offending software.

If this doesn't work, try rebuilding your Desktop. Start up your Mac holding down [command] and [option]. You'll get a message asking if you want to rebuild the Desktop. Click OK, wait for it to finish and see if this solves your problem.

If you're still stuck, use the form on page 53 to write to us. We'll need to know a few facts about your Mac, so when you're in the Finder, select About This Macintosh from the Apple Menu – the crucial things to note are shown at left.



Games such as *Abuse* squeeze every ounce of speed out of your Mac by using not-quite-kosher hacks. All games do it, and it can result in some serious incompatibilities.

Give me Abuse!

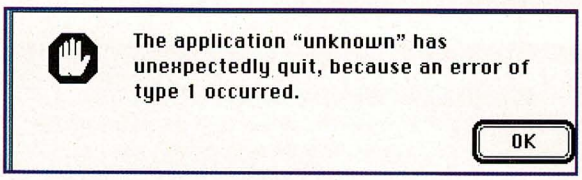
Games and crashing

Q *Having successfully copied the Abuse demo to my hard disk, I receive this message whenever I try to run it: "Sorry, a system error occurred. Abuse unimplemented trap". What is an unimplemented trap and how do I go about implementing it? Everything else on the CD seems to work fine, including other Bungie demos. I have a Performa 450 with 12Mb of RAM running System 7.1 and an external Reno CD drive with FWB CD-ROM Toolkit v1.0.9.*
Sam McMullen
Mansfield, Nottinghamshire

A An unimplemented trap is basically an infinite loop the Mac can't get out of. When it happens, the only thing the Mac can do is throw up a bomb message and get you to restart.

The problem you're experiencing is probably down to *Abuse* clashing with something installed on your Mac. Finding out exactly what it is can be a lengthy process. To run *Abuse*, you'll need Sound Manager 3.1 installed, but little else. Disable all your non-critical Extensions and Control Panels, including the driver for your external CD player – and restart your Mac. If *Abuse* is still "abusing" your Mac (groan), then it could be that it just doesn't like your Mac setup. Games are the most temperamental of all software types, largely because they use all sorts of hacks and tricks to get every ounce of speed out of your Mac. This can mean that they clash with something already installed on your machine. The best way around the problem is to strip out as many variables as possible – meaning you should disable as many Extensions, Control Panels, and drivers as possible to reduce potential clashes. If it still won't work, then it's probably something more inherent with your Mac (such as the System software version) that the game is having problems with. In this case, your only hope is that the software company involved comes out with an updated version to fix the problem. For more information on *Abuse*, visit Bungie's web site at **http://www.bungie.com/** or call Softline Distribution on 0181 401 1234.

Is it the document, or the application, or your Mac that is at fault? Error types one to ten are usually memory related, so try increasing the application's memory allocation in the Get Info box.



S1mpleT$@t?

Type 1 errors

Q *Whenever I try to open a Readme file on the MACFORMAT Cover CD, I get "The application "unknown" has unexpectedly quit because an error of type 1 occurred". Sometimes it's a type 3 error. What's going on?*
P H Phillips
Italy

A This is not the documents themselves, but *SimpleText*, the basic word-processor that comes with your Mac. Error types one to ten are generally memory-related. Try highlighting the *SimpleText* icon, selecting **Get Info** from the **File** menu and increasing the memory allocated to the program.

If this doesn't work, try copying the readme file to your hard disk. If it will open okay from here, then it could be that *SimpleText* isn't getting on with the driver for your CD-ROM drive. In this case, you should get an updated driver for it from the manufacturer.

If it still won't open the document, try another word processor. It might be that your copy of *SimpleText* is damaged, or clashing with something already installed on your Mac. Try reinstalling it from your System disks.

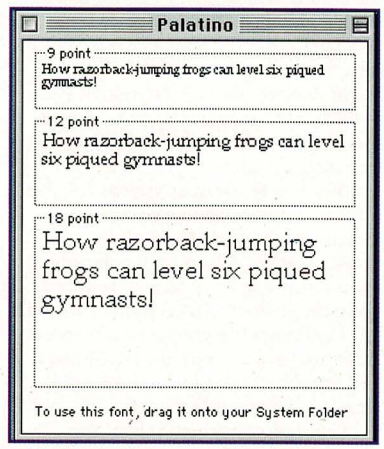
I don't like mysteries!

Fonts

Q *I enjoy playing with a lot of the software on MACFORMAT's Cover CDs, but recently something has been added to my system which I can't get rid of. A new font called MT Extra has appeared in my font list. I don't like it, I don't need it, I do not remember loading it, but I can't trash it because I can't find it! I've looked in the Fonts folder, I've looked inside the font suitcases, even inside the fonts themselves. I've tried Find File, I've tried looking for invisible items – all to no avail. Where is it and how do I get rid of it?*
Doug Browne
Hilston, Cambridge

A The Fonts folder was added in System 7.1 to make installing fonts easier. Previously, fonts were stored loose in the System Folder. However, to make it compatible with older applications, the System will still load any font it finds loose in the System Folder or in the Extensions folder. Try looking in these folders for any font suitcases. The suitcase may not be called MT Extra, but something completely different. It's quite common for applications that need specific fonts to install then in a suitcase with the application's name rather than the font name.

If you still can't find it, then it is theoretically possible that an application has patched an Extension, existing font, or even your System File to include the font – although they are not supposed to!


Palatino
9 point
How razorback-jumping frogs can level six piqued gymnasts!
12 point
How razorback-jumping frogs can level six piqued gymnasts!
18 point
How razorback-jumping frogs can level six piqued gymnasts!
To use this font, drag it onto your System Folder

Under System 7, you can investigate the contents of font files and suitcases by simply double-clicking on them. But what if you can't find the font in the first place? See "I don't like mysteries!"

Try disabling all your Extensions and Control Panels by moving them to a folder outside the System Folder. Then move all but the essential fonts (Geneva, Chicago, Monaco, Helvetica) from the Fonts folder into a separate folder on the

All that glitters...

Last month we had a call from an anonymous reader whose Mac had gone dumb. No matter what he tried, he couldn't get the Mac to make any sound whatsoever. Error warnings were silent and Audio CDs mute.

We suggested checking the volume in the Sound Control Panel was turned up and that he had Playthrough selected in the Sound Out box. He tried that. Still nothing. We knew that the Mac's speaker worked because it chimed on startup, but thereafter it was silent. Several hours after referring him to the Apple Assistance Centre, we received a message from a relieved Mac owner saying he had cured the problem.

The culprit turned out to be, of all things, the driver software for his Umax Vista S6e scanner, which seemed to have compatibility problems on his particular setup with Sound Manager 3.1. His solution was to disable the drivers when he wanted sound for games and music and enable them when he needed to do some scanning. While far from being an ideal solution, it was a workable one.

There are two morals to this story:

- When troubleshooting, don't make assumptions about anything being "okay".
- Try to make a note of what's in your System Folder on a regular basis.

If any other Vista S6e owners are having a similar problem, they can contact IMC Computers on 01344 871345 for an updated version of the driver.

Desktop and restart your Mac. If the font has gone, then one of your System Extensions is to blame and you'll have to put them back one at a time until you weed the culprit out. If the font is still present, then it looks like it might be buried in the System File. The only way round this is to make a clean install of your System software. This will install a whole new System Folder from scratch onto your hard disk. To do this, insert your original System disk and run the installer. When you get to the options screen hold down **[Command] [Shift] [K].** This should give you the option of performing a clean install.

Note that performing an ordinary install will only update your existing System and in all likelihood not remove the offending font.

If you don't have a set of System disks, then you'll need to try and borrow some from a friend or your local Apple dealer. Failing that, buy the current System 7.5.5 update (around £60 from most resellers) or buy the forthcoming System 7.6 update (price not announced as yet) when it appears later this month. Both will enable you to perform clean installs of the System software on your Mac.

Picky Pulsar?

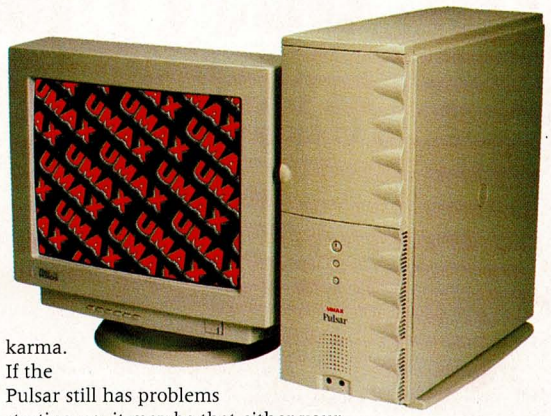
Q *I own a 200MHz Umax Pulsar and when I try to start the machine up, eight out of ten times all I get is a blinking question mark. I've had this problem for months and the machine has been back to both the dealer and IMC Computers (the distributor), yet they can't replicate the fault. When it does manage to start up,* Norton *Disk Doctor reports no problems, yet on the next restart the same problem happens!*

I've tried reformatting the disk, reinstalling the software, rebuilding the Desktop, all to no avail. The problem started when I installed an eight-speed CD-ROM drive which IMC sent me (my Pulsar originally came with a 6.7 speed CD-ROM drive), but the company has checked this unit out and couldn't find any problems.

John Davis
Yelverton, Devon

A There's a wise old saying that goes something like this: if you've just added some new kit and suddenly start having problems, you don't have far to look to find the likely cause. This sounds like an intermittent problem on your SCSI (Small Computer Systems Interface) chain, possibly caused by the CD-ROM drive. First of all, check that you don't have multiple CD-ROM driver software installed. You should have only one CD driver in your System Folder (depending on the make, it could be a Control Panel or Extension). Failing that, there may be a simple solution. Take the side panel off the Pulsar and remove the SCSI connection on the back of the internal CD-ROM drive. Try using your Mac for a while without this. If the problem disappears, you've found the cause.

Now, it might not be the drive itself. It could be loose connections, a damaged SCSI ribbon cable, or just plain bad karma.



The Umax Pulsar has a dual SCSI bus – one for internal and one for external drives. The internal connections will support six devices, so if you can't get a drive to work with one, try another.

If the Pulsar still has problems starting up, it may be that either your internal hard drive, the SCSI bus, or the SCSI connection ribbon or connectors are damaged. If you've got a spare external hard drive, try installing a System Folder on it and starting up from this instead.

If the machine works fine without the CD-ROM drive, try reconnecting your old CD-ROM drive in place of the new one. If that works okay, then the problem is with the new drive. Intermittent problems are the worst because often they can't be replicated when the machine goes back to the workshop. In these cases, there really isn't anything the supplier can do. Your only option here would be to try and talk IMC into giving you another drive.

If you don't have the old drive to connect to the Pulsar, try moving the existing drive to another SCSI connection. The Pulsar has six internal SCSI connectors, and it may be that one has got damaged. Again, try this out and see if the problem persists. **MF**

Mac Answers

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW; or fax it to us on 01225 446019.

Name .....

Address .....

.....

.....

.....

.....

Your Mac
(For example, Performa 475, 7600/120, PowerBook 5300):

.....

System version
(see **About This Macintosh** screenshot on page 55): .....

Amount of RAM
(see **About This Macintosh** screenshot on page 55): .....

Are you using Virtual Memory? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Do you have 32-bit addressing or Modern Memory Manager (PowerMacs only) turned on? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

.....

.....

Now, use this space to describe your problem or question. Please include as much relevant information as possible, and continue on a separate sheet if necessary.

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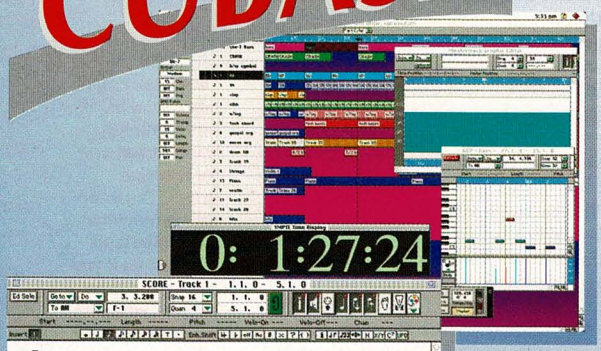
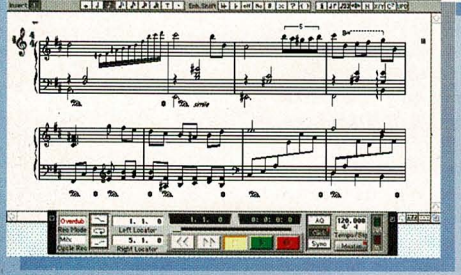
The Best Mac Solutions for...

...Midi sequencing, hard disk recording and scoring...

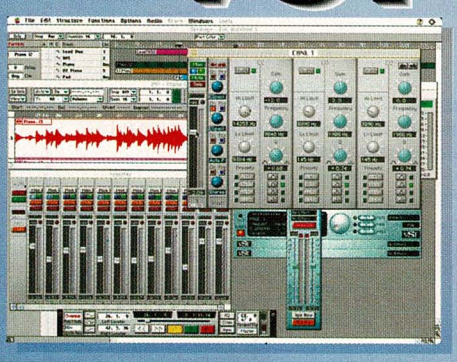
CUBASE



Cubase 3.0
More records have been composed and recorded with Cubase than with any other sequencer. With no less than 6 editing windows and unequalled levels of sophistication, including unlimited tracks, mixer maps, many quantize options, score printing, QuickTime movie support and much, much more, Cubase is now an industry standard.

Cubase Score 3.0
If you need powerful scoring on top of all the facilities in Cubase, then you need Cubase Score. The comprehensive scoring menu includes hundreds of graphics, text entry, polyphonic voicing, layout presets, automatic guitarist tablature etc etc. Ask for our Scoring Technology leaflet.

...Virtual Studio Technology...

CUBASE VST

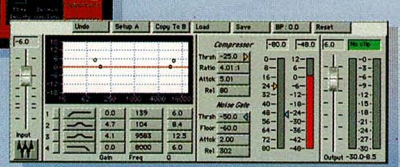


.... And if you are a PowerMac user then you also have access to Virtual Studio Technology in both Cubase and Cubase Score. Up to 32 tracks of simultaneous digital audio, 4-band parametric EQ per channel, 4 auxiliaries and 4 master insert points are all standard features. Also included are 6 effect plug-ins: Reverb, Delay, Chorus, Auto-panner, Tuner and Spatial Enhancer and, of course, full automation.
Cubase 3.0 - £329.00 inc vat
Cubase Score 3.0 - £ 499.00 inc vat

Plug-ins...

Loudness maximizer
Add an extra 6dB to your mix and make it sound LOUD!
£299.00 inc vat

Soon to come: Denoiser and Declicker for VST 3.02



Waves AudioTracker
Stunning, high quality compression and parametric EQ all in one.
£169.00 inc vat

Third party corner...

With the release of VST 3.02, Cubase is now also compatible with:
Digidesign Audiomedia III
Korg 1212IO
Waves Native Powerpack
HyperPrism

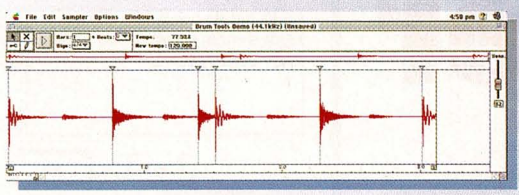
For more information, contact your local distributor.

Mac OS

Minimum system requirements: Apple Power PC or compatible computer. Minimum 6100/66 Mhz, recommended 7200/90 MHz. Minimum 16MB RAM, recommended 24MB RAM. 2nd-level cache required. System 7.5.3 or higher.

...groove analysis...

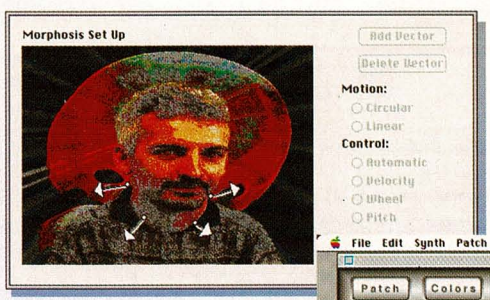
ReCycle! 1.6



This program makes the task of matching the tempo of one audio file with that of another EASY. Recycle isolates an audio file's rhythmic components, allocates the samples to different keys on your sampler and saves them as notes in a midi-file. When the midi-file is played, the audio-file will sync perfectly, whatever the tempo. Once you have tried it, you won't be able to live without it. Recycle 1.6 is compatible with Akai, Kurzweil, Emu, Ensoniq, Roland and Digidesign samplers, and is now also compatible with Cubase VST 3.02, enabling it to play back recycled files.

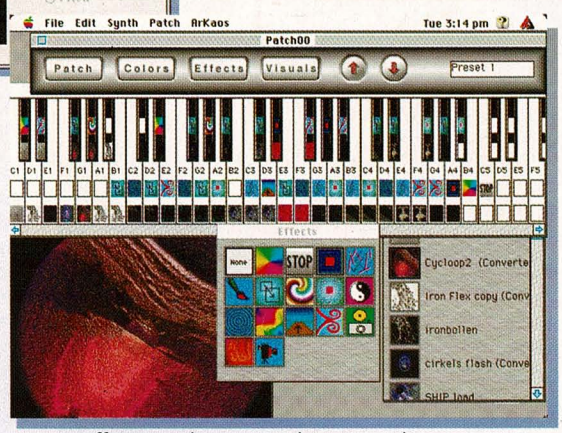
ReCycle! 1.6 - £199.00 inc vat

...and midi controlled video creation...



X◇POSE

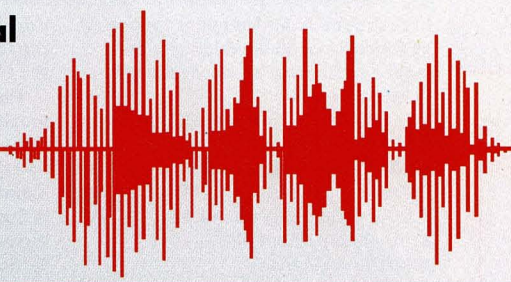
VISUAL SAMPLER



Imagine triggering visual images via midi. You could base your visual composition on the same midi information used for your music. Let the string track trigger a QuickTime movie, overdubbed with images triggered by the drum track. Midi controllers such as velocity, modulation and pitch bend could then control the movement of images via effects such as morphing, swirling etc. X-Pose does all this. Creating your own video is simple, and the potential for live performances are stunning. There are no synchronization problems or strange new languages to learn, and the product is available now.

X-Pose £449.00 inc vat

X-Pose. The visual sampler for the MAC



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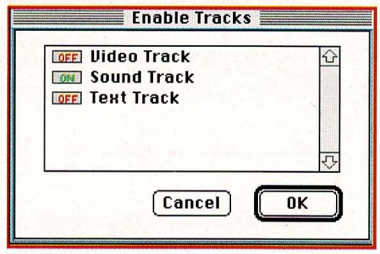
steps ahead

MoviePlayer

This issue, we delve further into the world of QuickTime movies, highlighting the potential of its editing and playback application, *MoviePlayer*. Jonathan Ferman is our man in the know...



When you copy a QuickTime movie, you copy all the tracks within the movie. However, *MoviePlayer* enables you to extract individual QuickTime tracks – just the soundtrack, for example.

If you've only ever used Apple's *MoviePlayer* as a utility for viewing QuickTime video clips, then you will have missed the program's true potential. It's part of the standard installation for QuickTime 2.5 or greater, and it works alongside QuickTime as a playback and editing application – almost all the functionality provided by QuickTime can be used by *MoviePlayer*. For example, you can use *MoviePlayer* as an image viewer, for PICT files, as a sound player and as a video editor. Some of the best features of *MoviePlayer* are not well documented, though, and have therefore become neglected. But read on, and a whole new *MoviePlayer* world will be opened up to you.

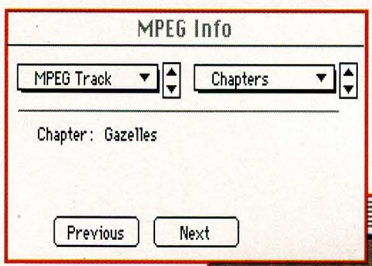
So, the first question to ask is "how do I get started?" Like all good Macintosh applications, *MoviePlayer* works on the drag-and-drop principle – you simply drop the movie on the *MoviePlayer* icon and it loads up. Alternatively, you can open the movie from the **File** menu. With this method and the latest versions of QuickTime and *MoviePlayer*, you also have the option to preview the movie before you watch the whole thing.

Most of the features of *MoviePlayer* can be controlled from the keyboard using shortcuts. And these shortcuts, incidentally, should also work in every application that uses the standard movie controller, not just *MoviePlayer*.

There are a number of different ways to start and stop the playback of movies. From the keyboard you can use either **[space bar]** or **[return]**; alternatively, you can use your mouse. If you double-click on a movie it will start playback, and single-clicking stops playback. Two important functions are controlled by the keyboard's arrow keys. The Up and Down arrow keys adjust the sound volume, while the Left and Right arrow keys enable you to move through a movie frame-by-frame.

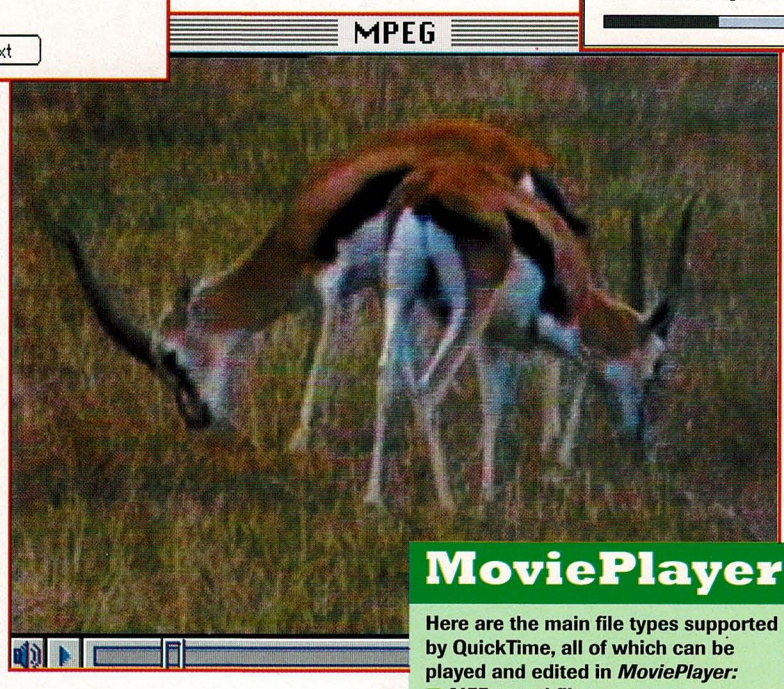
If you've ever had the urge to play a QuickTime movie backwards, you'll be pleased to know that it can produce some great effects. Just hold down **[shift]** and double-click in the **Movie** window. Furthermore, if you want to have several movies playing at once, first open all the movies (as described earlier) and then use **[tab]** to select each movie in turn. Then simply double-click or press **[space bar]** to play each movie, and **[tab]** to go to the next open movie. You then repeat this process for all the other open movies.

To mute the sound, hold down



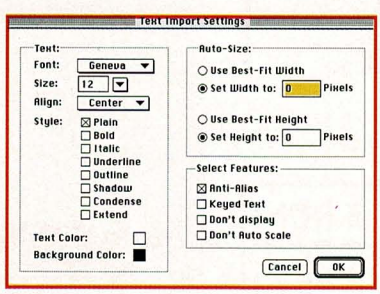
The QuickTime MPEG Extension enables PowerMac users to watch MPEG movies. The Extension will also give you the ability to move through movie chapters.

***MoviePlayer* can translate and play many different file types, including formats commonly found on the Internet.**



Web info

For all the latest QuickTime news and software, including the plug-in for Web browsers, go to **http://www.quicktime.apple.com/** And to get the all the latest *MoviePlayer* plug-ins and QuickTime utilities, go to: **http://www.quicktimefaq.org/software/** (The current plug-ins for *MoviePlayer* are on the Cover CD.)



***MoviePlayer*'s text import feature might look complicated, but you can just drag and drop text into the movie window.**

MoviePlayer file types

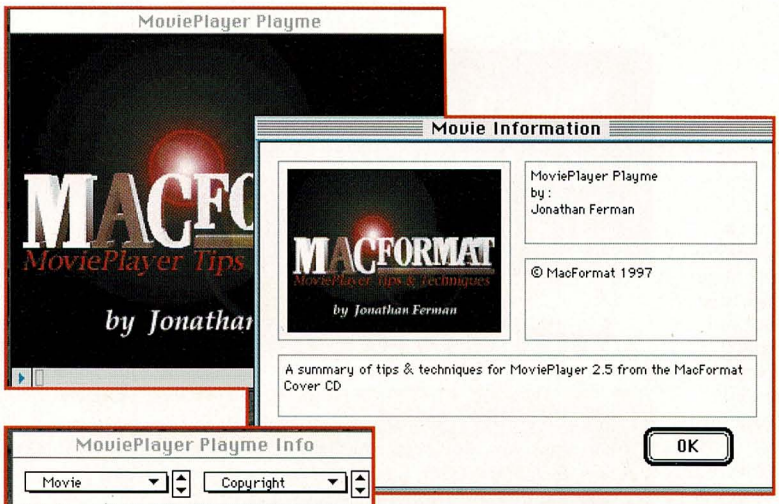
Here are the main file types supported by QuickTime, all of which can be played and edited in *MoviePlayer*:

- **AIFF sound file**
- **MPEG movie (requires QT MPEG Extension – PowerMacs only)**
- **MPEG audio file (requires QT MPEG Extension)**
- **WAV (Windows) sound file**
- **AU (Unix) sound file**
- **MIDI music file**
- **KAR – Karaoke files**

***MoviePlayer* enables you to translate these types of files into QuickTime. To do this, just drag-and-drop the files onto *MoviePlayer*, or use the Open or Import commands from the File menu.**

The main elements of QuickTime movies, located in QuickTime tracks, can be converted to other file types using the Export facility. You can export to the following:

- **Sound to AIFF**
- **Sound to System 7 Sound**
- **Music to AIFF**
- **Music to Standard MIDI**
- **Movie to Picture**
- **Text to Text (exports the text within a text track into a single text file)**



Once you've added your copyright information you end up with a Movie Information screen. This can be viewed by anyone who uses *MoviePlayer*.

[option] and click on the speaker icon (you'll find it on the left-hand side of the control bar). A second **[option]**-click truns the sound back on.

After all that playback, you may now want to edit your movie. You first of all have to adjust the playback speed by pressing **[control]** while clicking on the single-step buttons (the left and right arrows near the end of the control bar). This command will also play your audio track at the adjusted speed. It's a handy way to find precise edit points.

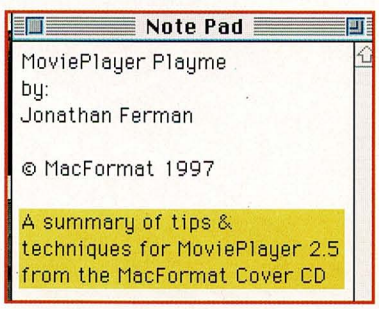
To select a part of the movie for copying, cutting and pasting, just hold down **[shift]** and click on the control bar. To dynamically select a movie segment, press **[shift]** while you start to play the movie (either **[space bar]** or **[enter]** starts the movie) – releasing **[shift]** defines the end point of the segment.

Plug-in potential

Like many of today's applications, such as *Netscape Navigator* and *Adobe Photoshop*, the features of *MoviePlayer* can be enhanced by using plug-ins. *MoviePlayer* has three plug-ins, primarily aimed at developers: Goodies, Authoring Extras and the VR plug-in.

The first two plug-ins are useful if you want to go deeper into the features of QuickTime. They enable you to add copyright information to your movie, change the volume and adjust various other parameters of a QuickTime movie. The VR plug-in, as you might have guessed, enables you to view QuickTime Virtual Reality (QTVR) movies within *MoviePlayer*. If you try to view a QTVR movie without the plug-in, *MoviePlayer* will display a white window, as it can't interpret the VR information.

To use the additional features provided by the plug-ins, select **Get Info** from the **Movie** menu. In order for the plug-ins to work, they must be stored in the same folder as *MoviePlayer*.


Note Pad
MoviePlayer Playme
by:
Jonathan Ferman
© MacFormat 1997
A summary of tips & techniques for MoviePlayer 2.5 from the MacFormat Cover CD

***MoviePlayer* enables you to add copyright information to your movie. To do this you need the Authoring Extras *MoviePlayer* plug-in. Then you just drag the relevant text into the Copyright window.**

Tips for better playback

If you're playing large QuickTime Movies, try allocating *MoviePlayer* some more memory. To do this, simply click on the *MoviePlayer* icon, then go to the **File** menu and select **Get Info.** In the **Memory Requirements** field (found in the **Information** window) type in a larger figure in the **Preferred size** memory allocation box. The amount of memory you can allocate depends on how much RAM your computer has. *MoviePlayer* prefers physical memory to virtual memory, so it's best to turn off virtual memory from the **Memory** Control Panel. You can also change a number of other settings to improve performance:

- **Number of colours** – set the colour depth to thousands or lower in the **Monitors** or (depending on what type of Mac you have) **Monitors and Sound** Control Panel.
- **Resolution** – set the resolution as low as possible, preferably 640 x 480. Again, this can be done in the **Monitors** or **Monitors and Sound** Control Panel.
- **Networking** – turn networking off (usually referred to as AppleTalk if you're using Open Transport). You can do this from the Chooser. Networking eats up valuable processing power.
- **Number of Extensions** – cut down the number of Extensions you use, and preferably make a QuickTime "set" – you can use Apple's *Extensions Manager* (which comes with System 7.5) or a similar product (such as *Conflict Catcher*) to create a sets of Extensions.

Suggested Extensions to include…

QuickTime
QuickTime PowerPlug
(PowerMacs only)
Sound Manager
QuickTime Musical Instruments
QuickTime MPEG Extension
(PowerMacs only)

The last two Extensions in the list are optional. The Musical Instruments Extension is useful if you want to play movies which have music, such as MIDI. The MPEG Extension can be used to play MPEG 1 movies.

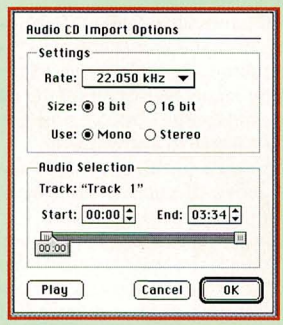
Copyright precautions

If you're working with QuickTime movies, be careful not to infringe any copyright laws by using any copyrighted material in them. It can be very ➤

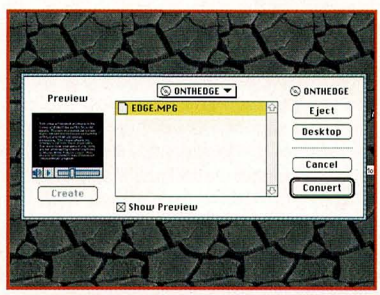
Using CD audio

***MoviePlayer* enables you to convert the data from audio CDs into a file format that your Mac will understand, so that you can play music straight from your hard disk. Simply follow these steps.**

1. Start by launching *MoviePlayer.*
2. Select Import from the File menu, select Desktop and then select your audio CD.
3. Once you have decided which audio track you want to convert, just click on the Convert button.
4. Click on the Options button – this enables you to save your movie (sound file) in various degrees of quality, the "sample rate". If you intend just to to play it from your Mac and you're not worried about the quality, you'll only need 22.05KHz or less, at eight bits in mono. A 16-bit stereo sample at 44.1KHz will give you CD-quality sound, but the higher the sample rate is, the more data you need – and the larger the file size will be. Note that high quality samples may not always play back at the correct speed on older Macs.
5. Name your file and then click on the Save button.



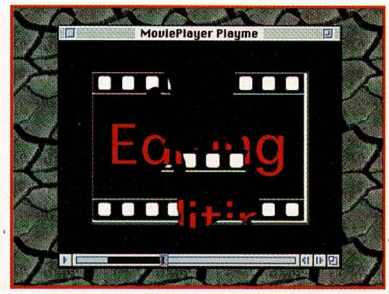
***MoviePlayer* gives you a number of audio CD import options which define the quality of the sample and its file size.**



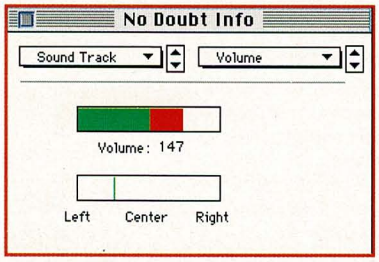
With *MoviePlayer 2.5* you can preview the first few seconds of an MPEG movie. It's also useful for pre-viewing sound files, and other supported formats.

Cover CD

GraphicConverter and QuickTime 2.5 are both available in the **Resources** folder on the Cover CD. And you'll find some *MoviePlayer* tips and techniques in the file **MoviePlayer Playme.** It's designed to let you try out the playback and editing controls and shortcuts.



***MoviePlayer* is equipped with some simple yet effective editing tools. To edit movies you just hold down the Shift key and move the cursor within the control bar – the selection is highlighted in black. You can mark selections while movies are playing, too.**



The *MoviePlayer* plug-ins enable you to alter the volume and balance to make sound tracks more vibrant.

tempting to use someone else's work, but you could face dire consequences. Conversely don't forget to copyright your own QuickTime material. *Movieplayer* enables you to view copyright details, and if you have the Authoring Extras *MoviePlayer* plug-in, you can add copyright information of your own to your QuickTime movie.

And when you've dealt with such serious matters, there are loads of cool things you can do with *MoviePlayer*. You could, for instance, use it to make a movie which shows all your favourite pictures (in PICT format). To open the picture in *MoviePlayer*, either drag-and-drop each picture over the *MoviePlayer* icon, or use the **Import** function from the **File** menu. Alternatively, you can use *GraphicConverter* to convert all the pictures for your slideshow into a QuickTime movie format.

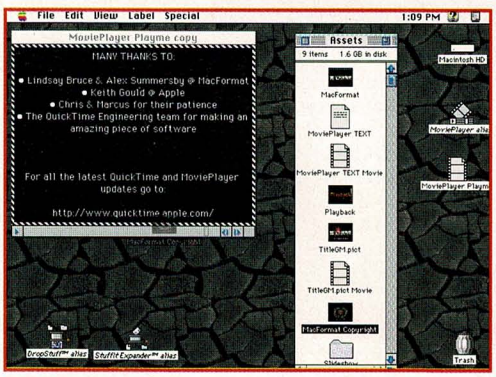
Once you have created your QuickTime movie, select **Loop** from the **Movie** menu to keep the movie running continuously. Finally, select **Present Movie...** from the **File** menu. To exit out of the movie once it's running, press **[escape]**. You've now got a cheap and personal alternative to a screensaver.

Secondly, you could also use *MoviePlayer* to make a QuickTime movie of a presentation, again using PICT format. If your presentation software can't export to QuickTime or PICT, you may have to use some lateral thinking. Perhaps the best way (and unfortunately the most tedious) is to make screen grabs of all your slides. (To make a screen grab press **[command] [shift] 3**.) Once you've made the screen grabs, edit out everything except the slide window using a paint package and then save all the pictures in the same resolution, such as 360 x 240.

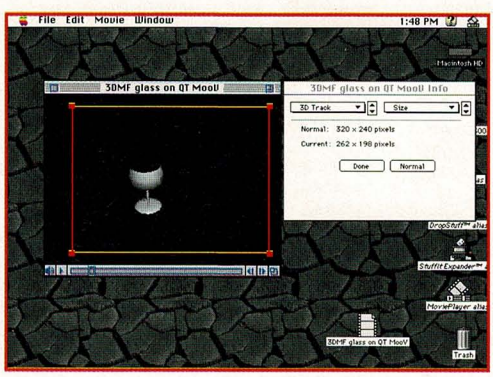
The advantage of creating presentations this way is that you can then give your presentation on any computer that supports QuickTime – you can even distribute it on the World Wide Web, thanks to the widely-available QuickTime Plug-in, part of *Netscape Navigator 3*. To move from slide to slide, you use the Left and Right arrows on the control bar, or the Left and Right arrow keys on your keyboard. **MF**

Next month

Next issue, we'll look at QuickTime's Music Architecture and what you can do with it.



Adding elements like text or graphics to a movie is straightforward. You can drag-and-drop items straight onto the *MoviePlayer* window, which highlights to show you where your additions will go.



You can scale tracks, such as video. You can even scale 3D models. Once scaled they will continue to play back at the new size.

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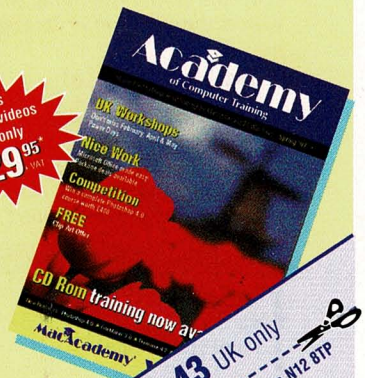

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Hardware

Group test: removable storage 60
Iomega Zip drive, SyQuest EZ Flyer, Nomai 540, Electronique d2 540 MCD, Xyratex MaxIt, Electronique d2 640Mb MO, Electronique d2 650Mb HS MO and MicroNet DataDock Express.
Newton MessagePad 130 & 2000 68

Productivity software

QuarkImmedia 76
Connectix PhotoMate 81
Corel WordPerfect 3.51 84

Music

Nightingale 3.0 86

Multimedia

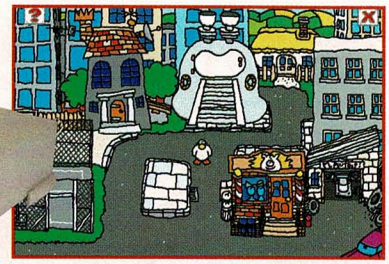
Musée d'Orsay 90
Scrutiny in the Great Round 91
BBC Shakespeare: Romeo and Juliet, Macbeth, A Midsummer Night's Dream 92
The Crucible 94
The Double Double 96
Duck City 97
Dinosaur Hunter 98
My First Incredible, Amazing Dictionary 99

Games

Caesar II 104
Close Combat 106
Wizardry Gold 108
Mode 110
Police Quest SWAT 113
Mah Jong Parlour 114

Shareware Central 116
Reviews of the latest low-cost software fresh from the Internet.

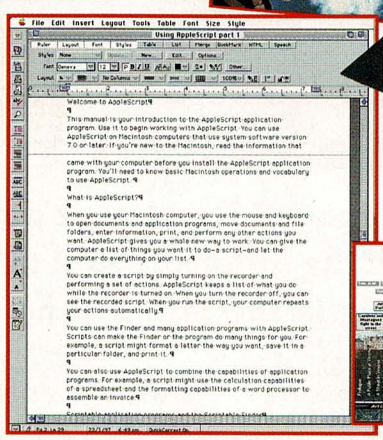
Which is the best removable disk drive for your Macintosh? Our group test starts on page 60.



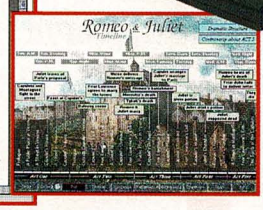
Explore cartoonist Alan Snow's unique *Duck City* on page 97.

Will *QuarkImmedia* revolutionise multimedia publishing? Find out on page 76.

Is *WordPerfect 3.51* the best Macintosh word processor you can buy? Read the MACFORMAT review on page 84.



Go to page 68 to find out what we think of of the new 130 and 2000 MessagePads.



You've seen the play, now study the timeline. *Romeo & Juliet*, the CD, is reviewed on page 92.

Reviews you can trust

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ON THE CD

This means there's a demo version, preview or sample on our Cover CD

The MACFORMAT info bar

PRICE	£40	**ON SALE**	Now	**CONTACT**	Future on 01225 442244	**WEB SITE**	http://www.futurenet.co.uk/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** 603 • **RAM:** 8Mb	**REQUIRES**	**System:** 7.5 • **HD space:** 5Mb • **Screen:** 640 x 480 • **Colours:** 256		

Price: RRP, inc VAT. **Contact:** The number to call for more information. **Web site:** Usually the maker's site, for more details. **RAM:** The minimum memory your Mac will need to have. Free RAM is the requirement excluding the System. **Processor:** Check the table on page 124 for your Mac.

Running out of storage space? Need your data to be more portable? Lindsay Bruce assesses the situation and takes a look at the options and new technology available in the latest generation of removable storage.

On test

Iomega Zip drive **page 62**
SyQuest EZ Flyer **page 62**
Nomai 540 **page 63**
Electronique d2 540 MCD **page 63**
Xyratex MaxIt **page 64**
Electronique d2 640 MO **page 64**
Electronique d2 650 HS MO **page 65**
MicroNet DataDock Express **page 65**

You know the scenario all too well. You buy a Mac with a seemingly unlimited amount of hard disk storage included with it, and six months later you're wondering if that letter you wrote to your aunt in Australia is a valuable use of 48K of space. Data always seems to expand to the space you have available for it, whether it's your documents, applications, or System software. You can of course regularly weed out unwanted files and use compression programs (such as *Stuffit Lite*, on our Cover CD-ROM) to archive files that you don't immediately need. Alas, these are but temporary measures and the chances are that you will eventually have to invest in some sort of additional storage.

Removable storage is the cheapest and most economical solution to expanding your storage or backing up your files. Once you've forked out for the initial cost of the drive, the cartridges are relatively inexpensive and your storage capacity almost unlimited. But with so many different types of drives and formats out there, which one do you go for?

The computer storage industry is in upheaval at the moment, as manufacturers strive to beat competitors on price and performance in an increasingly cut-throat market. This is good news for you though, since new technology has never been so cheap as it is now. Over the next eight pages, we'll look at how removable storage works, and the position of the industry today. We review and rate eight drives, and then take a peek at the technology that you can expect to see tomorrow.

How do they work?

Occasionally, you'll find that errors will creep into data written to your hard disk. This is why Apple provides a repair utility, *Disk First Aid*, with every Mac sold – although sometimes even this can't repair a damaged hard drive. If data integrity is absolutely critical to you, then you should buy a drive that has a long and reliable life span. Whatever the case, it's handy to know how different types of drive work. This information can help you find a solution to your particular storage problem.

Nearly all removable drives work on the same basic principle as the humble floppy disk. A single circular platter coated with tiny magnetic particles is encased in a protective casing. When inserted into a drive, the platter is spun at high speed and a "read and write" head (similar to the one you'd find in an audio tape cassette recorder, but much smaller) is moved across the radius of the disk to read the data. The head doesn't actually touch the disk, but floats on a cushion of air above the surface.

The magnetic particles on the surface of the platter are arranged in "tracks" – concentric rings that spread out from the centre of the platter to the outside. The exact number of tracks depends on the

capacity of the disk. The particles they contain can be polarised to magnetic north or south. Each particle stores one bit of data – a "one" or a "zero" (magnetic north or south, see?) The "read and write" head follows one track at a time, passing over the particles, converting the weak magnetic field emitted by the particles to an electrical pulse. As the platter spins under the head, each particle produces a pulse according to its magnetic polarity, and in this way a stream of digital data (commonly known as binary) is produced. The particles themselves aren't changed as they are read, and they can be read time and time again without altering them.

To change the data stored on the disk, this process is reversed. Data is sent to the "read and write" head as a stream of electrical pulses which create a small, localised magnetic field around the head. This changes the magnetic polarity of the particle immediately under the head, effectively overwriting previous data. In this way, the binary information that your computer uses can be written, stored and retrieved at any time.

All magnetic-based removable media work along these basic principles, including SyQuest, MCD (Magnetic Cartridge Drive), Jaz, Zip and floppy drives. They do, however, differ in the way the technology is implemented. Platters of different materials and sizes are used, tracks and magnetic particles are made smaller and packed closer together, and different read/write head assemblies are being developed in the search for more accurate storage systems that can pack even more data on to a small cartridge.

The exception to all this is the family of magneto-optical drives. Some of the same principles apply – data is stored as magnetic charges on tiny particles coating the surface of a circular platter – but the way the data is written to the disk is different. In a magneto-optical drive, the particles on the surface of the platter cannot change magnetic state until they have been heated by a highly accurate laser. A large electromagnet then polarises the heated particle to either a "one" or a "zero". Once cooled, the particle is very stable, cannot be changed until heated again and can be read many thousands of times.

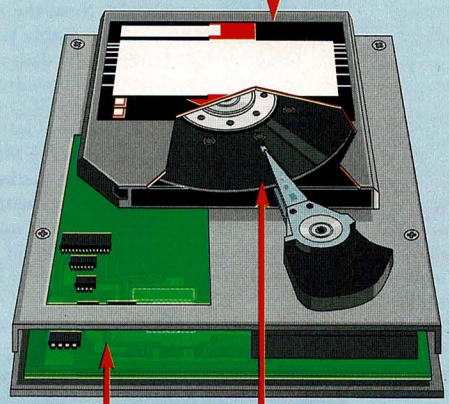
This might seem an overly difficult way of encoding data to a disk, but in fact it's very effective. Because the data on the disk cannot be changed at room temperature, magneto-optical disks aren't prone to corruption by stray magnetic interference, unlike other magnetic media. They also last a very long time – at the moment estimates place their lifespan at around 50 years. That's ten times longer than the life expectancy of any other media.

Magneto-optical drives are the ultimate in long-term reliable data storage and, because laser technology is coming along in leaps and bounds, the capacity of the disks increases every few months (although sadly you can't use the newer, higher-capacity disks with your old MO drive). Another advantage is that a laser beam can be made much smaller than a conventional read/write head, so you can pack more data on to a disk. It's widely predicted that MO drives will eventually replace the hard drive in your Mac, as conventional magnetic-based media reaches its limits.

Removable drives

This illustration is based on the MCD drive (see page 63), but most removables work on similar basic principles.

Disk: a removable cartridge is little different from a floppy disk – it's a platter encased in plastic.



Controller board: much the same as you'll find in a hard disk, but it's also used to control the eject mechanism.

Platter: when the disk is inserted, the platter slips into position between the read/write heads.

How we tested 'em

We tested each of the drives on a Power-Mac 7200/75 with 16Mb of RAM. For a more scientific approach, we used *Mac-Bench 3.0* to test each drive's performance over a range of "read and write" tests. For comparison purposes, we compared the results to those of a 1Gb Fujitsu internal hard drive – our control unit. In addition, to give the drives a real-world test, we copied a 30Mb folder full of files of varying sizes to each of them and measured the time it took to complete the process. You'll find the full results of our tests, as well as drive specification comparisons, on pages 66 and 67.

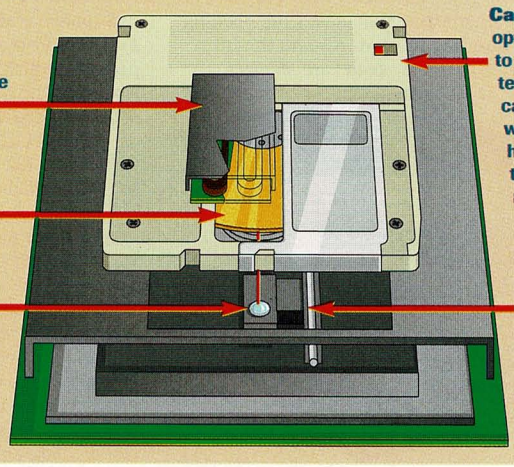
Magneto-optical drives

Magneto-optical drives use a different technology which fuses data on to the platter using a laser, making MO media among the most durable.

Electromagnet: data is fed through here, producing a magnetic field which alters only the areas of the platter heated by the laser.

Platter: the magnetic particles are protected from damage by a thin layer of clear plastic.

Laser: this heats up a tiny portion of the disk, so its magnetic polarity can be altered using an electromagnet.



Casing: the magneto-optical platter is encased to protect it from wear and tear. Data on the platter can only be changed when the surface is heated, making it one of the most stable storage media available.

Slide carriage: this moves the laser across the radius of the platter, enabling it to write to any individual data track.

PRICE	£141	CARTRIDGE	£15	CONTACT	Iomega on 0800 973194	WEB SITE	http://www.iomega.com/	£ PER MB	£1.17 (initial), then 15p (carts)

Iomega Zip drive

We first reviewed Iomega's Zip drive way back in MACFORMAT 29. Now, the Zip drive is fast becoming a viable successor to the ageing floppy disk drive, so much so that Apple is bundling the new 8600 and 9600 PowerMacs with built-in Zip drives. This step follows that of Power Computing, the Mac-clone manufacturer, which has been bundling built-in Zip drives with some of its machines for over a year now. Iomega is obviously pushing for the Zip to replace the floppy disk as the basic means of transporting data by hand.

Capacity: 100Mb
Media type: 3.5"
Warranty: one year
Dimensions:
48mm high
205mm wide
265mm deep
Bundled with:
Iomega Zip Tools,
two 100Mb
Zip disks

Outwardly, the Zip drive looks like something of a toy. Its distinctive thin plastic casing will certainly appeal to children – possibly a disadvantage. Still, this "toy" is one of the most successful storage devices ever produced, so what has it got going for it? Well, it can store 100Mb on a single 3.5-inch disk little thicker than a floppy.

The Zip drive is designed to be as portable as possible and, in line with current thinking, has been made as lightweight as possible. This means that it doesn't have its own power supply, but relies on an external mains adaptor. The front of the drive features a power indicator, drive-access light, and an eject button.

On the back you'll find two 25-pin SCSI connectors, internal terminator switch, and a SCSI selector switch. With the latter, however, you are limited to choosing between SCSI IDs 5 and 6, and the 25-pin SCSI connections can cause problems if you're connecting the drive in the middle of a SCSI chain.

The drive is supplied with two Zip disks in the box – one blank, and one containing electronic documentation, formatting software and game demos. The formatting software is straightforward to use and it includes a neat feature – a Guest driver Extension. You can leave this Extension installed in any number of other Mac System Folders, ensuring that the Macs then recognise your Zip drive with no problem. The documentation for the drive is good, with step-by-step instructions a good troubleshooting section, but there's a lot of jargon here that isn't explained.

In our tests the Zip fell a fair way behind the MCD drives. It took a lengthy 61 seconds to copy our test folder, and benchmarking showed it to be the slowest drive on test. Furthermore, it doesn't hold as much data as newer drives. That said, however, it's still the cheapest by far, and is a good back-up storage device.

Iomega Zip drive

MF rating 81%

The Zip drive comes with *Zip Tools*, probably the friendliest and easiest formatting program we've seen.

PRICE	£241	CARTRIDGE	£23.50	CONTACT	Syquest on 0131 339 2022	WEB SITE	http://www.syquest.com/	£ PER MB	£1.05 (initial), then 10p (carts)

SyQuest EZ Flyer

The EZ Flyer is the successor to the EZ135 reviewed back in MACFORMAT 34. It uses the same 3.5-inch cartridge technology as the EZ135, but can hold nearly twice as much data – 230Mb. You can also use it to read and write to EZ135 carts.

Capacity: 230Mb
Media type: EZ135 or EZ Flyer
Warranty: one year
Dimensions:
38mm high
136mm wide
184mm deep
Bundled with:
Silverling Lite, Paint Alchemy 1.02,
230Mb cart, game and graphics demo

Outwardly, the EZ Flyer is a natty-looking creature, with a smooth, stylised grey plastic casing. It's a portable device, and as such doesn't have a built-in power supply, but comes with a small AC transformer. On the front of the drive is a flip-down panel that covers the opening for inserting the cart. Also on the front panel are an eject button, power-indicator lights, and a drive-access light. Curiously, though,the power on/off button is recessed into the side of the drive.

The back of the casing has two 25-pin SCSI connectors for hooking the drive up. If you want to daisy-chain the drive to other devices, you'll need a 25-pin-to-50-pin SCSI cable rather than the standard 50-pin-to-50-pin. Oddly, the Flyer doesn't have a SCSI ID switch. It's preset at ID 4, and changing the drive's ID is a complicated exercise.

Supplied with the drive is the *Silverlining Lite* formatting and driver software package, which is very straightforward. However, the Mac software comes on a PC-formatted disk along with the PC drivers, so installing it requires PC Exchange (part of System 7.5 and above) or the older *Apple File Exchange*. Why should you have to go through that bother? Did SyQuest run out of Mac floppies? On the bright side, you do get a pre-formatted Mac cartridge supplied with the drive.

The documentation for the drive has improved over the EZ135's. Gone is the poorly printed manual – its replacement is properly bound documentation including diagrams. You also get an out-of-date US Sygear accessory pamphlet. However, there's still no troubleshooting, no tips and nothing in the way of further information on the driver software.

In use, the EZ Flyer was a nippy little beast, copying our 30Mb folder in 44 seconds. Our *MacBench* tests put it at 66% of the speed of our benchmark hard drive – not bad for a small removable, though the MCD drives (facing page) were quicker. Overall, the EZ Flyer is a neat drive, but in terms of speed and capacity it pales next to the MCDs.

SyQuest EZ Flyer

MF rating 78%

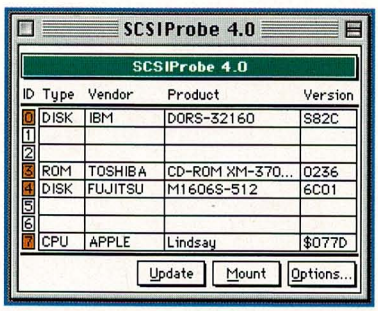
The *Silverlining Lite* Control Panel is basic, but easy to use. Not easy to install, though – it comes on a PC format disk.

PRICE £271 **CARTRIDGE** £46 **CONTACT** Computers Unlimited on 0181 358 5857 **WEB SITE** http://www.unlimited.com/ **£ PER MB** 50p (initial), then 9p (carts)

Nomai 540

Nomai's 540 is based on the increasingly popular MCD (Magnetic Cartridge Drive) technology which uses carts not dissimilar to the new EZ Flyer (although sadly you can't interchange them with the latter). Like Xyratex's MaxIt, it will read and write to Syquest 270Mb carts as well as its own media.

The 540 is small, unassuming, and... um, black. Indeed, black figures quite heavily in this drive's design – all of the accessories are of the same colour. The 540 is designed to be as portable as possible (even the plastic packaging is moulded into a carrying case) and it will quite happily slip in to your inside pocket. The black steel casing adds to the drive's weight, and gives it a reassuringly robust feel. Like the EZ Flyer, the 540 doesn't have its own built-in power supply, but relies on an external power adaptor which is supplied. On the front of the casing is an eject button which also serves as the opening for the cartridge and a drive-access light, but no power indicator. Around the back is a single 25-pin SCSI connector (a 25-pin-to-25-pin SCSI cable is supplied), which means that you'll have to connect the drive at the end of your SCSI chain. A SCSI ID switch enables you to select ID one or five, which limits your options somewhat, but on the plus side, termination is built-in, and there's a switch next to the SCSI ID selector to turn it on and off.



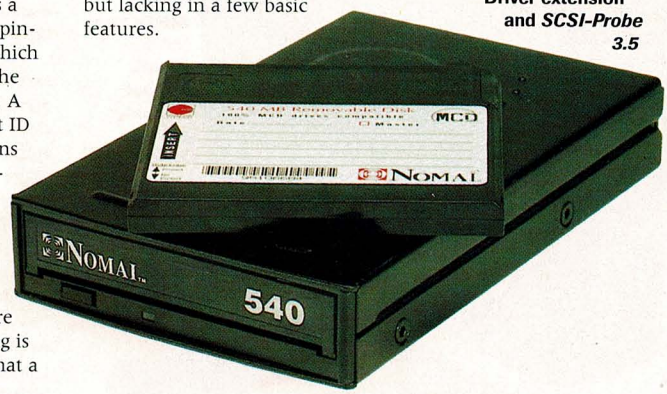
Nomai's 540 comes with *SCSIProbe* for mounting stubborn disks, but the formatting is all done by your Mac.

With the drive you get a simple MCD Drive Extension which mounts carts on your Desktop. There is no formatting software, formatting is done in the same way as you'd format a floppy disk – insert the cart and hit **Initialise** when the "This disk is unreadable..." dialogue box comes up. This is good if you're a beginner, but not advanced enough if you're not. On the disk you also get *SCSIProbe 3.5*, the indispensable SCSI Control Panel.

The documentation for the 540, however, is slim and frustrating. It comes with lots of illustrations and information, but it's all presented rather confusingly. You also have to play "hunt-the-diagram" throughout the booklet, only to find that you've ended up in the German section. To its credit, though, it does have a small troubleshooting section.

In our tests the Nomai 540 performed well. It copied our 30Mb folder in 31 seconds – better than all the other removables on test. Overall, it's neat and fast, but lacking in a few basic features.

Capacity: 540Mb
Media type: MCD or 270Mb Syquest
Warranty: one year (media five years)
Dimensions: 33mm high 109mm wide 180mm depth
Bundled with: Driver extension and *SCSI-Probe 3.5*



Nomai 540

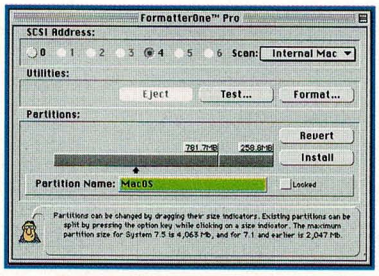
MF rating 79%

PRICE £288 **CARTRIDGE** £46 **CONTACT** Electronique d2 on 0171 833 0009 **WEB SITE** http://www.electroniqued2.com/ **£ PER MB** 53p (initial), then 9p (carts)

Electronique d2 MCD

Electronique d2's version of the MCD drive is, unlike all the others here on test, not designed to be portable. It comes in an altogether more solid-looking grey steel, low-profile stackable casing – the rubber feet on the bottom of the drive are designed to fit neatly over the top of an identical style casing beneath. Okay, so this is hardly a huge selling point, but if you have more than two drives, you probably know the misery of trying to get them to stack neatly.

On the front of the drive is a power indicator, drive-access light and eject button for the motorised drive flap. At the back is a power on/off switch, 50-pin SCSI connector, 25-pin SCSI connector, SCSI ID selector switch and internal termination on/off switch. The odd arrangement with the SCSI connectors is actually pretty logical. d2 bundles the standard 25-pin-to-50-pin SCSI cable with the drive and the 25-pin SCSI connector enables you to connect a second drive using another (standard) 25-pin to 50-pin SCSI cable. This eliminates the need for the 50-pin-to-50-pin SCSI cables you normally use to daisy-chain SCSI devices. Also, since the drive has its own termination, you'll never need to connect a 50-pin terminator block to this drive.


FormatterOne™ Pro
SCSI Address:
0 1 2 3 4 5 6 Scan: Internal Mac
Utilities:
Eject Test... Format...
Partitions:
Revert
Install
Partition Name: MacOS
Locked
Partitions can be changed by dragging their size indicators. Existing partitions can be split by pressing the option key while clicking on a size indicator. The maximum partition size for System 7.5 is 4,063 Mb, and for 7.1 and earlier is 2,047 Mb.

***FormatterOne Pro* is one of the more capable disk utilities and offers you lots of options for custom partitions.**

With the drive, you get *Driver d2* formatting software (which is Software Architects' *FormatterOne* under a different name), and *SCSIProbe 3.5*. The formatting software supports not only MCD, but every other type of drive in existence.

The documentation for the drive is, sadly, poor. It doesn't cover any specifics about the drive and merely gives a brief tour of the casing and set-up procedures for d2's entire range – in several languages. The troubleshooting section amounts to a couple of paragraphs, that tell you to make sure the drive's plugged in and that your SCSI connection is solid. Nowhere is there mention of an MCD cart, nor any significant technical specs.

When hooked up to the Mac, d2's MCD drive performed much the same as the Nomai 540 – it does, after all, use the same technology. Our 30Mb test folder copied over in 33 seconds, and the benchmark results were also almost identical to the Nomai drive. Overall, though, we feel that d2's MCD drive is worth the extra £17 over the Nomai version. It may not be as portable, but it offers a full formatting and driver utility and a SCSI ID selector switch.

WIN ONE OF THREE d2 540 MCD DRIVES! See page 146

Capacity: 540Mb
Media type: MCD or 270Mb SyQuest
Warranty: one year
Dimensions: 48mm high 205mm wide 265mm deep
Bundled with: *FormatterOne* driver software, 540Mb cart

Electronique d2 MCD

MF rating 83%

PRICE £305 **CARTRIDGE** £46 **CONTACT** Performance Direct on 01784 477477 **WEB SITE** http://www.xyratex.com/ **£ PER MB** 41p (initial), then 9p (carts)

Xyratex MaxIt

This drive, like the Nomai and d2 MCD on page 63, uses MCD technology. The drive is available in either a bright yellow or equally garish blue plastic casing – though yellow seems to be in short supply at the moment – and it's powered by a rather hefty external mains adaptor.

Capacity: 540Mb
Media type: MCD or 270Mb Syquest
Warranty: one year
Dimensions: 41mm high 121mm wide 210mm depth
Bundled with: *FormatterOne* driver software, 540Mb cart

The front of the drive sports an eject button and drive-access light. The power on/off indicator is, strangely, situated on the top of the drive towards the back – but there is no power on/off switch. At the business end of the drive are two mini-SCSI connectors and a SCSI ID switch, and this is where the MaxIt's design falters. The SCSI ID switch is recessed and requires a special tool to alter it. The tool is supplied, but you're guaranteed to lose it within a month and this is going to cause problems if you're regularly using the drive with different Macs.

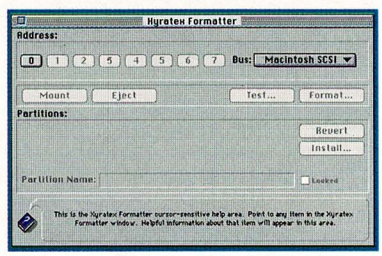
Furthermore, the Mini-SCSI connectors are both a blessing and a curse. They are easier to use and less cumbersome than normal SCSI connectors, but to connect the drive in to a SCSI chain with other devices is going to need a special cable, which will cost you around £15 to £20. On the bright side, you do get two SCSI cables, and the cables have sturdy die-cast metal connectors rather than the standard plastic ones.

With the drive you get Software Architects' *FormatterOne* driver software (renamed *Xyratex Formatter*), which will format almost any type of drive and mount it on your Desktop. You get a pre-formatted 540Mb cart, and the MaxIt will read and write Syquest 3.5-inch 270Mb carts (EZ135 compatibility is expected soon). The manual for the drive is – compared to that of other drives – not bad. It covers the basics on setting up and offers a troubleshooting section.

Once hooked up to the Mac, the MaxIt provided us with something of a shock. Although the *FormatterOne* driver software is identical to that of the d2, the MaxIt was much quicker. It copied our 30Mb test folder in 26 seconds, and the benchmarking results put it way ahead of the rest of the pack. Overall the MaxIt is a pretty impressive drive, marred only by the nonsensical SCSI ID switch and slightly peculiar Mini-SCSI. However, it costs substantially more than either the d2 or Nomai MCD drives, and this is what really counts against it.

Xyratex MaxIt

MF rating 79%



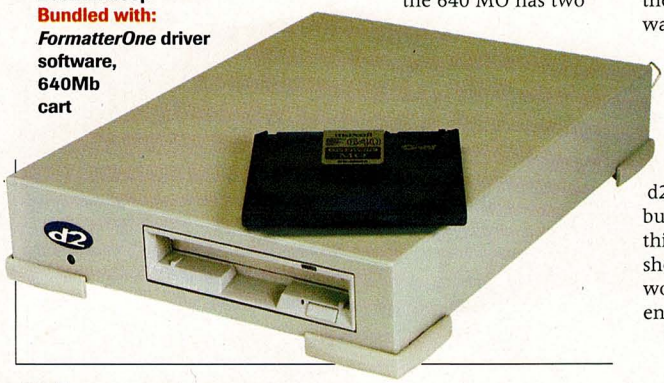
Like many of the drives, the MaxIt comes with *FormatterOne Pro* software – renamed *Xyratex Formatter* under licence.

PRICE £551 **CARTRIDGE** £34 **CONTACT** Electronique d2 on 0171 833 0009 **WEB SITE** http://www.electroniqued2.com/ **£ PER MB** 86p (initial), then 5p (carts)

Electronique d2 640Mb MO

Electronique d2's 640Mb magneto-optical drive shares the same casing as its MCD drive – a low-profile stackable steel grey affair that you could bounce rocks off (this is not a suggestion). The drive uses the new 3.5-inch 640Mb magneto-optical disk standard and is compatible with the older 230Mb disks. It will even read the still-older 128Mb carts – if you have one of the older 3.5-inch magneto-optical drives and lots of these carts kicking about, this is an absolute boon.

Capacity: 640Mb
Media type: 3.5" MO
Warranty: one year
Dimensions: 48mm high 205mm wide 265mm deep
Bundled with: *FormatterOne* driver software, 640Mb cart



The front of the drive sports a power indicator, eject button and drive-access light. Around the back things get a bit more interesting. Like d2's MCD drive, the 640 MO has two different SCSI connectors – one standard 50-pin, and one 25-pin (like the one on the back of your Mac). This means that if you already have a 50-pin external drive, you can still use the 25-pin-to-50-pin SCSI cable supplied with the drive to daisy-chain them together. A power on/off switch and SCSI ID selector can also be found on the back panel. Oddly, in the same place as you'd find the internal termination switch on the back of the d2's MCD drive, the MO sports a sticker saying "Do not use, not connected". Instead, you are supplied with a 25-pin SCSI terminator in the box – something we've not come across before.

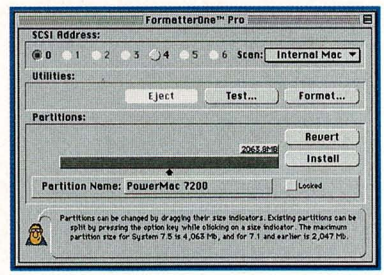
With the drive you get d2's version of the common *FormatterOne* driver software, a manual for the latter, and a 640Mb MO cart. Unfortunately the cart doesn't come formatted, but this takes only a matter of seconds.

The documentation for the drive, though, was disappointing. Like the manual for the MCD drive, it covers d2's entire range in several languages – but there is a lack of specific details for this drive, no tips on use and no troubleshooting section. A dedicated manual would be much better, and d2 is apparently revising its documentation.

Performance wise, the d2 drive was predictably slow – not because it's a bad drive, but because magneto-optical drives still have some catching up to do with their basic magnetic-based cousins on the speed front – a small price to pay, given that MO carts do last ten times as long as their magnetic counterparts. Our 30Mb test folder copied over in 72 seconds – not bad for an optical. Overall, this is a respectable drive, but let down both by its documentation and the fact that it's rather high-priced.

Electronique d2 640Mb MO

MF rating 80%

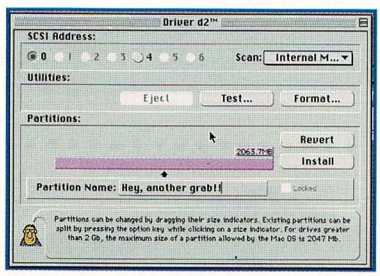


Look familiar? *FormatterOne Pro* can format, partition, mount and test different drives. This version is customised for d2.

PRICE £751 **CARTRIDGE** £50 **CONTACT** Electronique d2 on 0171 833 0009 **WEB SITE** http://www.electroniqued2.com/ **£ PER MB** £1.16 (initial), then 8p (carts)

Electronique d2 650Mb HS MO

As you can probably tell, this drive bears more than a passing resemblance to the last one. Same case – different drive. d2's 650Mb magneto-optical drive uses the latest in 3.5-inch optical media – the 650Mb HS (High Speed) cartridge. This differs from the 640Mb cart in that it is designed specifically to take further advantage of the recent advances made in the field of laser technology. The HS aims to pack as much information on to a single optical disk as possible – and to retrieve it as fast as possible, too. The immediate disadvantage is that an HS-based drive can't read the older 230Mb and 128Mb optical carts. If you're a first-time buyer, this might not seem like a problem, but if you want to be able to exchange data with people who have older mechanisms, then this drive is not the one for you.



***FormatterOne Pro* again – what can we say? One option is to install any of a range of custom drivers to speed up your drive.**

The 650Mb HS disks themselves are slightly different from the 640Mb carts – they have a sleeker, more rounded case and won't fit in the 640Mb drives. Similarly, the 640Mb disks won't fit in the 650Mb drive either.

The front of the grey steel case sports a power indicator, eject button and drive-access light. On the back are two SCSI connectors (again, one 50-pin and one 25-pin), a power on/off switch and a SCSI ID selector. Like the one on the 640Mb version, the switch provided on the back of the case to alter the state of the internal terminator doesn't do anything – it isn't connected. Instead, you get a 25-pin external SCSI terminator in the box.

Like the other d2 drives, the 650Mb MO is supplied with d2's own version of the popular *FormatterOne* formatting and driver software. It has to be said, for such a high-performance drive, we were expecting something a little more advanced. The documentation for the drive is identical to the other two – in several languages, non-specific and no real help at all.

The 650Mb optical was a bit of an oddity – in our benchmark tests it performed worse than the 640Mb version. However, it reasserted itself on the real-world test and copied our 30Mb folder in a mere 49 seconds. It seems that this drive has a problem with smaller files. Overall, you're going to have to be in a pretty specialist area to want to pay £200 extra for the relatively small speed gain.

Capacity: 650 Mb
Media type: 3.5" 650Mb HS
Warranty: one year
Dimensions: 48mm high 205mm wide 265mm deep
Bundled with: *FormatterOne* driver software, 650Mb cart

Electronique d2 650Mb HS MO

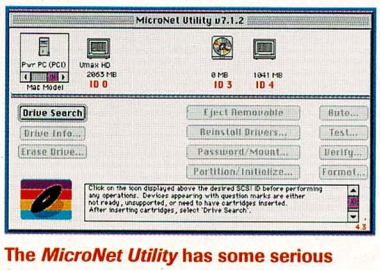
MF rating 70%

PRICE £175 **CARTRIDGE** Varies with media **CONTACT** MicroNet on 01926 460470 **WEB SITE** http://www.micronet.com/

DataDock Express

Technically speaking, this is not a removable drive, although literally it is. The DataDock Express is not a drive itself, but a drive housing – with a difference. It's designed to take plug-in drive modules that include hard drives, magneto-optical drives, Jaz drives, Syquest drives, CD-R drives – you name it. The version shown here is the 3.5-inch, which will take almost any type of 3.5-inch drive module.

Each drive module is composed of the actual mechanism housed in a sturdy plastic casing. On the back of this is a custom connector which plugs into a socket inside the Dock when the module is slid into place. The module itself has no SCSI connections or power supply – these are in the Dock. Power is supplied by a mains adaptor that plugs into the back of the machine. However, you only get one SCSI connector, so the Dock always has to be the last object in the SCSI chain. What's more, you also select the SCSI ID on the back of the dock, using a recessed switch, for which you need a flat-bladed screwdriver – but at least you can pick any SCSI ID.



The *MicroNet Utility* has some serious features and will mount just about anything on your Desktop.

Dock modules (available separately) are "hot-swappable" – meaning that you can remove them from the Dock and replace them with a different module, all without having to shut your Mac down. The absolute beauty of this system is that the drive modules are not only entirely portable, but you have access to any number of different types of drives. And because you're only buying the power supply and SCSI connections once, the drive modules are cheaper than their standalone counterparts. A 1Gb Jaz module, for instance, will cost you £434, a 230Mb MO module £445, and a 2Gb SCSI-2 hard disk module £499. And because the drive modules are the same as you'd find in any standalone drive, there's no speed penalty.

With the Dock you get SCSI and power cables, but no driver software – this comes with the drive modules. The driver software is *MicroNet Utility*, an extremely capable program, if somewhat in need of an interface-lift.

The DataDock is suitable if you need access to different storage media types and either don't want or already have all the SCSI connections you require. It's a serious alternative, but the addition of a second SCSI connection and a better SCSI ID switch would make the DataDock as close to a perfect a removable storage system as you could wish.

Capacity: varies
Media types: 3.5"
Warranty: one year
Dimensions: 84mm high 131mm wide 300mm deep
Bundled with: *MicroNet Utility*

DataDock Express

MF rating 82%

And the winner is...

Well, no single drive leapt out at us, really. These days, it seems it's not so much individual products but the underlying technology in them that counts – the actual type of media that a drive takes. Clearly you should go for a drive that is going to be around for some time, or you could find yourself unable to buy media for it. But which one is best?

It's hard to compare different technologies. We were very impressed with the new MCD drives, which offer lots of cheap, fast storage. Each one has its strengths, but at the end of the day Electronique d2's MCD gets our vote for being the best value for money. Very close behind is Nomai's version of the drive. If portability is crucial for you, it's the one to go for. If you need a compatible drive above everything else, though, then there's still nothing to touch the

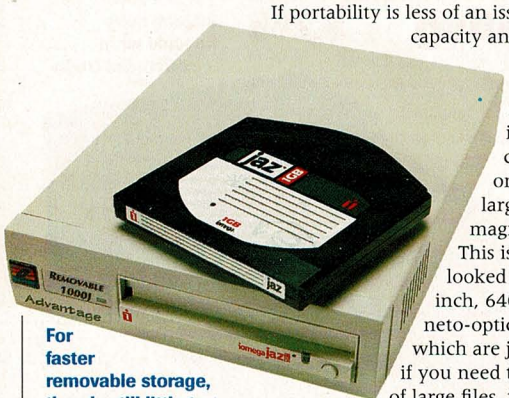
How they shape up on paper

Drive	Capacity	£/Mb (initial)	£/Mb (cart)	Rating	Contact
Iomega Zip drive	100Mb	£1.17	15p	81%	Iomega on 0800 973104
Syquest EZ Flyer	230Mb	£1.05	10p	78%	Syquest on 0131 339 2022
Nomai 540	540Mb	50p	9p	79%	Computers Unlimited on 0181 358 5857
Electronique d2 MCD	540Mb	53p	9p	83%	Electronique d2 on 0171 833 0009
Xyratex MaxIt	540Mb	41p	9p	79%	Performance Direct on 01784 477 477
Electronique d2 640Mb MO	640Mb	86p	5p	80%	Electronique d2 on 0171 833 0009
Electronique d2 650Mb HS MO	650Mb	£1.16	8p	70%	Electronique d2 on 0171 833 0009
MicroNet DataDock	–	–	–	82%	MicroNet on 01926 460 470

Alternatively...

This issue, we've concentrated on the smaller removable drives just coming to the market, and compared them with the old favourites such as the Zip drive. If, however, you want even larger capacity than these drives can offer, then take a look at Iomega's Jaz drive (the MicroNet version was reviewed in MACFORMAT 43, where it scored a Classic-Award-winning 92%). It can hold 1Gb of data on a 3.5-inch removable cart, and rivals a small hard disk in terms of speed. Various manufacturers have licensed the Jaz technology from Iomega and make their own version of the drive, including MicroNet, Electronique d2, and Performance Direct. Depending on who you buy it from, a Jaz drive will cost you in the region of £350, but shop around for the best deal.

If portability is less of an issue than the capacity and reliability of the storage medium itself, you could opt for one of the larger non-magnetic media. This issue we've looked at the 3.5-inch, 640Mb magneto-optical drives which are just out, but if you need to store lots of large files, then their larger capacity 5.25-inch cousins might fit your needs better. Currently, the standard for 5.25-inch magneto-optical media is a whopping 2.6Gb – and the speed of the drives is not far off hard disk standards. We looked at three 2.6Gb drives back in MACFORMAT 43 and since then the prices have come down from over £2,000 to around £1,500. A lot of money, but bear in mind that optical media lasts for up to 50 years.

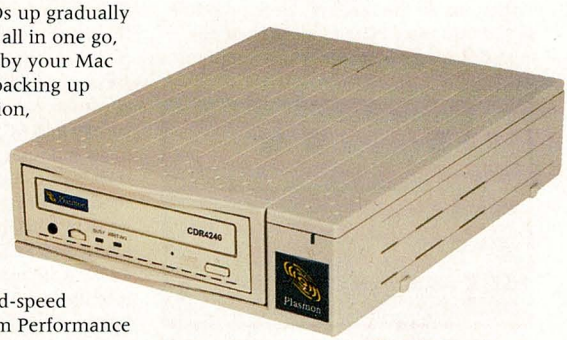


For faster removable storage, there's still little to touch the Jaz drive. It's almost as fast as a hard drive and can store up to 1Gb.

If speed isn't a major factor and you just need lots and lots of cheap backup storage, then you could do far worse than buy a CD-writer, such as the quad-speed drive from Plasmon (below). Once costing several thousands of pounds and occupying the area of a small filing cabinet, CD-writers have dropped dramatically in price and size as the technology has advanced rapidly. You can now buy a double-speed CD-writer for as little as £400; gold master discs cost around £8 and can store up to 650Mb of data each. The only practical limitation of CD-R (CD-Recordable) is that it isn't a rewriteable medium. However, most CD-writer drive software (including the popular *Toast CD-ROM 3.0*) enables you to produce multiple-session CDs. This means you can fill your CDs up gradually rather than having to do it all in one go, and each session is treated by your Mac as a separate volume. For backing up small amounts of information, this is ideal. A double-speed CD-writer can fill a 650Mb CD in around 45 minutes. For faster back-up, quad-speed writers are available which can cut a full CD in around 20 minutes. The Plasmon quad-speed CD-R drive is available from Performance Direct and costs £681.

Lastly, if you need high-speed, high-capacity storage for running your applications, storing digitised sound and video, or in fact anything that requires lots of fast storage on tap, then there is absolutely no substitute for a fixed hard drive. Hard drives are, megabyte-for-megabyte, initially much cheaper than removable drives and much faster. The only drawback to a hard drive is that its media can't be swapped, so you're stuck with the amount of space the drive comes with. These days, the smallest

Larger magneto-optical drives (this one is from Xyratex) can store up to 2.6Gb of files on a single disk – but they are expensive.



Burn yer own! If you need to back up lots of files (especially graphics), why not go for a CD writer? The discs cost a mere £8.

Iomega Zip drive, which is becoming so widespread you practically get one free in your *Corn Flakes* packet these days.

As Apple and other computer manufacturers bundle the drive with their latest machines, the Zip looks to have a long and productive future. SyQuest's new EZ Flyer is also good, but not quite good enough to beat the rest. It has a smaller capacity than the MCD drives, and is actually slower in some cases. A great shame, since its predecessor the EZ135 was a terrific drive. If you're lucky, you might still be able to get hold of a 135, but that could be tricky, since the drive is officially discontinued.

For the high capacity and low cost of media, the magneto-optical drives are worth considering, though their performance isn't earth-shaking. We liked d2's 640Mb MO drive, but its initial price is somewhat steep for a home or small office. The MicroNet DataDock Express is a serious, if unconventional, alternative.

Wait! There's more...

If you want to know more about how storage works, what the jargon means and how to fix things when they go wrong, then turn to page 48 for a guide to the basics of data storage – it could just save your life!

How they performed

Drive	*MacBench* result	Real-world test (secs)
Fujitsu 1Gb (benchmark)	100%	22
Iomega Zip drive	33%	61
Syquest EZ Flyer	66%	44
Nomai 540	66%	31
Electronique d2 MCD	76%	33
Xyratex MaxIt	77%	26
Electronique d2 640 MO	42%	72
Electronique d2 650 HS MO	42%	49

The benchmark results are expressed as a percentage of how well the drive performed in the tests, compared to our control unit – a 1Gb Fujitsu internal hard drive. The longer the bars, the better the performance.

hard drive any manufacturer makes is 2Gb and the largest 9Gb. An external 2Gb drive will cost you as little as £350 and can store the equivalent of three full CD-ROMs. Just at present, only a hard drive can sustain the speed that your Mac demands to run applications.

The future

The last year has seen significant changes in the storage market – but perhaps the biggest changes are yet to come. Over the last three years the CD-ROM has become the most commonly accepted medium for distributing computer data, multimedia, games and software. CD-ROM has been with us for over ten years and it has remained largely unchanged. Come this year, all this *will* change.

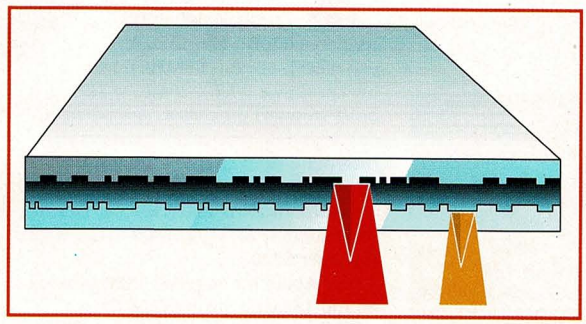
DVD (Digital Video Disc, or Digital Versatile Disc as it's fast becoming known) has been agreed as the successor to the CD and will soon be appearing in high street shops. DVD uses much the same principles as compact disk (to the naked eye, it looks identical), but is actually much more advanced. While CDs use only one side of the disc to store information, DVD can use both sides. DVD also employs a dual-layer technique, where two layers of data are sandwiched together. The topmost layer is semi-transparent, allowing a laser beam of a certain wavelength to pass through and read the data layer beneath.

In addition to this, the huge leaps made in laser technology have enabled the tracks of pits found on a CD-ROM to be made smaller, meaning that there can be more of them packed on to the standard disc. The result is that a DVD disc can store a minimum of 4.3Gb of data, and a maximum of as much as 17Gb.

The technology involved is remarkably simple. A highly accurate pulsing laser is bounced off the surface of the disc and – depending on how it is reflected back – interprets the pits it registers as the "ones" and "zeros" of computer data – exactly the same way as a CD-ROM works, but on a smaller scale. The real trick comes with the second layer. The laser beam is simply re-focused to pass through the semi-transparent first layer and hit the layer beneath. From then on, the laser acts as if it were reading an ordinary CD-ROM.

For the first time, it is now possible to store an entire feature film in broadcast-quality digital video on a single digital disc. Many blockbuster movies are already lined up to be sold on DVD in high street shops, and the first consumer DVD players are already on sale – check out the latest offering from Panasonic, below. DVD drives for the Mac should be here this year, so you can watch full-screen, feature-length, MPEG-2 encoded films on your Mac by Christmas '97.

It will be some time before recordable DVD drives are out, though, and considerably longer before they are within the financial grasp of most people – on current predictions, around the year 2000. DVD-R is unlikely to incorporate the dual-layer technology – it isn't advanced enough yet. However, given current standards, future discs will still hold around 4.3Gb of data per side – a total of around 8.5Gb.



DVD uses not one layer, but two. The first layer is semi-transparent, enabling a laser beam of a particular wavelength to pass through to read the data on the layer beneath.

If you don't need anywhere near that capacity or can't wait that long, you might be more interested in SyQuest's latest drive. The SyJet, launched last month in the US, is due here in the UK any day now. The SyJet is SyQuest's answer to Iomega's Jaz drive, and can hold 1.5Gb of data on a 3.5-inch dual-platter removable cartridge. SyQuest boasts that it's as fast as a hard drive, and it's expected to cost around £500 when it reaches the UK. Watch for a review in MACFORMAT soon. **MF**

Writable DVD isn't here yet, but DVD players like this one from Panasonic are. You'll soon be able to play the new DVD film discs available in the shops.

PRICE	MP 2000, £822.50; MP 130, £570	**ON SALE**	MP 2000, April; MP 130, now	**CONTACT**	Apple on 0800 127753	**WEB SITE**	http://newton.info.apple.com/
REQUIRES	To connect to your Mac: **Processor:** 68030 or any PowerMac • **System:** 7.1						

MessagePad 2000 &130

This 162MHz StrongARM-based gadget looks set to improve upon its predecessors. But is it a note-taking machine, a communicator or just a smaller laptop? Clive Grace checks out the pocket-sized computing market.

Temptation is a difficult thing to resist – especially when it comes in a form like this. A paperback-sized, 162MHz portable computer which comes with a built-in word processor, spreadsheet, day-planner, note-taker, contacts file, Internet e-mail client software, Web browser and news-reader. It can take standard alkaline batteries and can run continuously for up to 24 hours – all for just over £800.

The Apple MessagePad 2000 is based on the 162MHz StrongARM CPU, a lower-power RISC processor jointly developed by Digital Equipment Corp, Apple and Advanced Risc Machines (ARM). And although it operates ten times as fast as the MessagePad 130, this speed boost *doesn't* cost ten times as much. It further comes with a 480 x 320 pixel backlit screen capable of displaying 16 shades of grey, two Type II PC Card slots (one of which can be an internal modem slot), 1Mb of system RAM and 4Mb of storage RAM. A neat little package.

Apple is clearing out old machines, discontinuing the MessagePad 120 – and the 130 is down to £570 to make way for the 2000. The MessagePad 2000 looks much like the original MessagePad 100, save for a few cosmetic differences and a flip-top lid. It's too big to fit in a jacket pocket but it's a lightweight 1.4 lb (0.64 kg) – about a fifth of the PowerBook 1400's weight. It still has no integrated keyboard, but you can connect one to the multi-purpose port on top of the unit if you want to.

Additionally, the 2000 combines screen technology called transflective LCD with an electroluminescent backlight. Similar to the technology used in Timex's Indiglo watches, the display can either illuminate on-screen images by reflecting ambient light – like the reflective screen in all MessagePads – or by using a backlight.

The electroluminescent layer sits between the screen's reflective panel and liquid-crystal display. With the backlight on, it casts a soft, greenish light, and when the backlight is off, ambient light passes through the electroluminescent layer, making the screen look like that of any other MessagePad.

The MessagePad 2000's lid hinges out to the side (right) instead of the flip-up *Star Trek* affair of the 130 (top right). This makes it look more like a Filofax than a PDA.

Staying power

The backlighting switch on the MessagePad enables you to trade legibility against battery life. Despite StrongARM's lower requirement for processing power, you should use the backlight sparingly, or when you're connected to a power outlet. This is because backlighting can deplete your battery life by at least 50%. However, under what Apple describes as "normal" use, where backlighting is on 10% of the time, battery life is diminished by only 10%. Also, because Apple has made dramatic changes to the 2000's power sub-system, your battery life with backlighting off will be almost three times as long as that of the MessagePad 120. This means roughly 21 hours of continuous use with a high-power alkaline battery pack.

Apple has stated that backlighting is seldom required. Although you'll find that this is true, having backlighting on does make the display easier to read – even in a well-lit room. It would be nice if the 2000 could power the backlight for several hours of uninterrupted use, but we only got four or five hours out of a constantly backlit 2000, even with longer-life alkaline batteries. However, we fitted four AA Duracell batteries for our review and three weeks later it's still going. You can expect even longer performance from lithium ion AA batteries.

Another refinement to the new screen is an anti-glare coating, which helps with screen-readability and makes the writing surface less slippery, giving a more paper-like feel for on-screen writing.

There are several major improvements

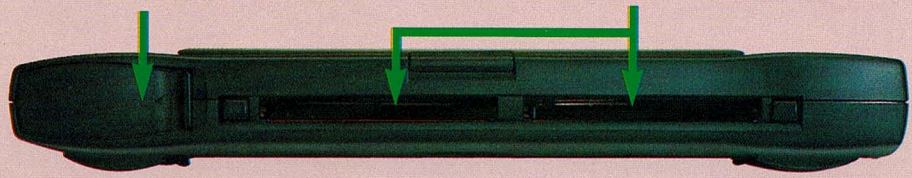
Get on-line

A wide range of new Internet e-mail packages have migrated to the Newton OS, including *Eudora Light*. (You'll find the Mac version on your Cover CD).

Getting connected with the 2000

The MessagePad 2000's serial connection port is hidden under a rubber cover, along with a power adaptor socket for running it from the mains.

The 2000 has two PC Card slots which can accommodate Type II cards, so you can expand your memory and have a modem at the same time.



services
work
ab cd ef gh ij kl mn op qr st uv wx y2
Abbey National Bui 01225 425185
American Express 01273 679904
AppleCentre Bristo 0117 9225661
Bath Natural Healt 01225 313153
British Rail Disable 01904 639174
British Rail Travel E 0345 484950
Broom, Pete 01225 483055
Clarion Music Cent 415 391 1317
DHSS 01225 320 400
East West Herb Sh 071 379 1312
Fagg, Jake 01179 2400160
Figaro Ristorante 415 398 1300
Five Branches Insti 408 476 9424
Habitat (Bath) 01225 460623
Jeffries, Emma 01225 461 388
Johnston, Steve
Kangaroo Moon
Macadam Comput 415 863 6222
Mana acoustics 081 429 0118
Midland Card Servi 01702 460 888
Netcom 1 800 501 8649
Padgett, Gillian 01225 446089
Palmer, John 01225 339752
Quan Yin Healing 415 861 4964
Sainsbury's 01225 444737
San Francisco Sex I 415 989 7374
Shopley, Ken 01689 832 049
St. James Surgery 01225 422911
Storage USA 415 626 6665
New
All

The address book looks cleaner and more streamlined. The check boxes are a clever idea for printing and faxing letters. You simply write a standard letter, hit the check boxes relating to the letter's recipient and the MessagePad 2000 will do the rest. It's able to address letters and set up fax numbers for you, as well as customising layouts.

to the System, too. The button bar, for example, is no longer printed on the display – the MessagePad now supports a configurable icon bar in the display. This enables you to put nearly any icon in the **Extras** drawer on the button bar, which offers a big improvement on its more static predecessor.

Other enhancements include the Newton Interconnect, a tiny, fragile-looking multi-purpose port offering Serial and AppleTalk communications, and even audio connections. The 2000 is also the first MessagePad to come with a built-in microphone, for use in combination with its new audio facilities to record sound. Unfortunately, an hour of good-quality audio takes up an entire 4Mb storage card – but for note-taking, you can get an hour of reasonably well-recorded conversation into a 2Mb card.

The MessagePad 2000 comes with *Newton Backup Utility*, which, as its name implies, is only suitable for making backups. For editing, importing, and exporting data to your Mac or PC, Apple recommends its *Newton Connection Utility*, which is supplied with the 2000. Earlier versions of the original *Newton Connection Kit* won't work with the 2000, though application-specific tools, such as Revelar's *Revelar Connection Utility* or Now Software's *Now Synchronise* worked perfectly well.

And unlike older MessagePads, the 2000 comes with all the software you'll need to get productive right away. It comes bundled with the *NewtonWorks* word processor, PelicanWare's *QuickFigure Pro*, an Excel-compatible spreadsheet, *NetHopper* Web browser, and *Newton Connection Utilities* for Mac or *Windows*. You also get a news reader, e-mail client and basic notepad and address book. The word processor, though, will only work with a keyboard, and this is an optional extra, priced at around £60.

Before the MessagePad 2000's arrival, the MessagePad was best described as a glorified notepad with the added ability to store names and addresses. It was convenient for bringing your desktop Mac's data with you while you travelled, but hardly innovative. This has all changed with the MessagePad 2000. The technology has matured, so that very badly or hastily scribbled handwriting can be understood. It works well except for the slight change in the way the cursor operates under Newton OS 2.0, which makes it harder to place a starting point. In many respects the MessagePad has grown up.

MessagePad 130

And so what of the MessagePad 2000's sibling, the MessagePad 130? Well, to start off with, size-wise it's slightly smaller than the 2000. It's also almost a third slower than the MessagePad 2000 (thanks largely to its 20MHz ARM 610 RISC processor), and it's very similar in appearance to the 120. However, the 130 has several new features that enhance its utility – most notably more RAM and the same backlit transflective LCD screen as the 2000.

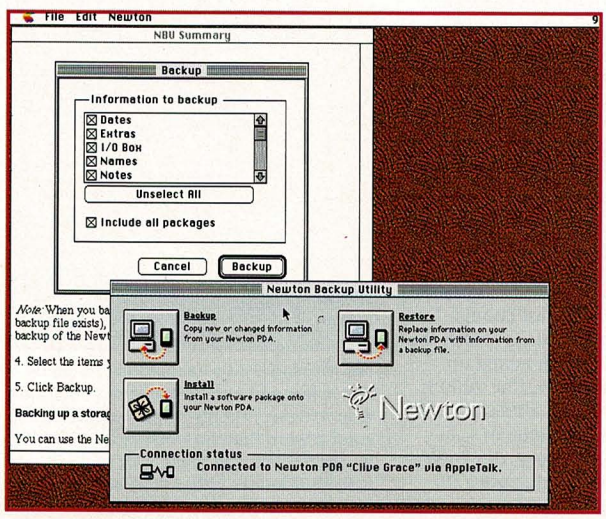
As for its battery life, well, there have been no significant changes to the 130's power sub-system, so battery life without backlighting is the same as that of the MessagePad 120 – about eight hours of continuous use with a rechargeable NiCad battery pack. On the other hand, we achieved close to 13 hours of continuous use with four non-rechargeable AA Lithium Ion batteries.

Also, the 130's internal memory or heap space has been substantially increased and is now 1.2Mb (the 120 only has 600K). Heap space is the part of internal RAM that the Newton OS sets aside for executing instructions, the equivalent to adding RAM to your Mac. The remainder of the internal RAM is used for storage – much like a hard disk.

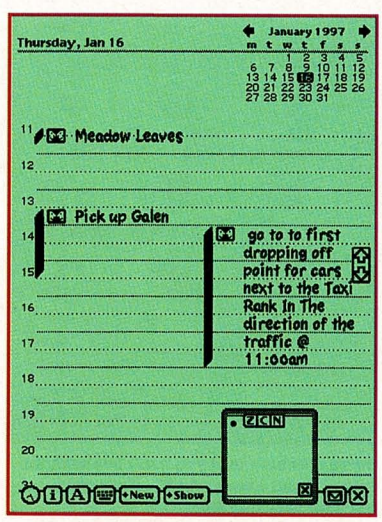
The extra space enables you to install almost twice as many applications on a 130 as you can on a 120 (each application takes up some heap space even if it isn't in use). The larger heap space also seems to result in a noticeable speed ➤

NCK or NBU?

The *Newton Connection Kit* won't work with the MP 2000. A new version is due soon, but until then you'll have to make do with the *Newton Backup Utility*, which is bundled with every MP 2000.

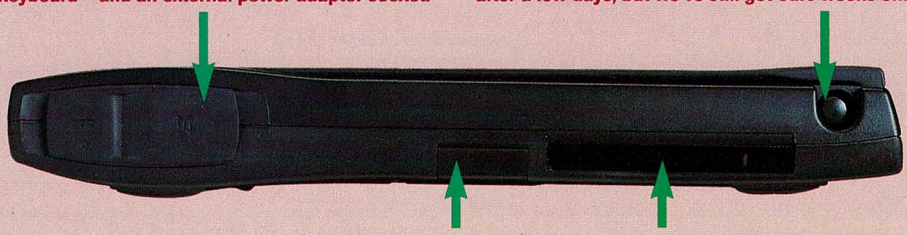


The *Newton Backup Utility* is a stripped-back and simplified version of the *Newton Connection Kit*. Mac and *Windows* versions are supplied along with all the necessary cables and connecting leads.


Thursday, Jan 16
January 1997
Meadow Leaves
Pick up Galen
go to to first dropping off point for cars next to the Taxi Rank in the direction of the traffic @ 11:00am
New
Show

The day-planner has been simplified, making it easier to "nest" schedules inside other schedules. The To-Do list has been put into a button at the bottom of the screen, so rather than toggling between the Calendar and To-Do screens, you can have both – again, with the option of spooling over uncompleted tasks into the next day.

Getting connected with the 130


Like the 120, the 130 has a serial connection port for hooking it up to your Mac and connecting a keyboard – and an external power adaptor socket.
The scribe slips neatly away into a recess at the top of the case. We reckoned this would get lost after a few days, but we've still got ours weeks on!
The eject button for the PC Card slot has a locking mechanism to prevent it accidentally coming out. Sadly, it's a manual affair and you have to remember to lock it.
The 130 will accommodate a single Type II PC card, which can be used to expand the MessagePad's memory or to add a modem.

increase. Because the 130 uses the same 20MHz ARM 610 RISC processor as the 120, we can only attribute the 130's faster performance to the extra memory.

Shortcomings? Most annoying of all is the fact that the 130 has only a single Type II PC card slot. Unless you need backlighting or extra heap space, the 130 doesn't offer enough if you already have a MessagePad 120 (or even a 110 with OS 2.0) or can find one cheap.

And there's the price too. A MessagePad 130 with 2.5Mb of internal RAM, bundled with some Mac and PC serial cables, the *Newton Backup Utility* and (if you're lucky enough to have a sympathetic dealer) a copy of *Pocket Quicken*, costs £570. That's too expensive when compared with a Psion Series 3c (which goes for around half this price) or a US Robotics Pilot.

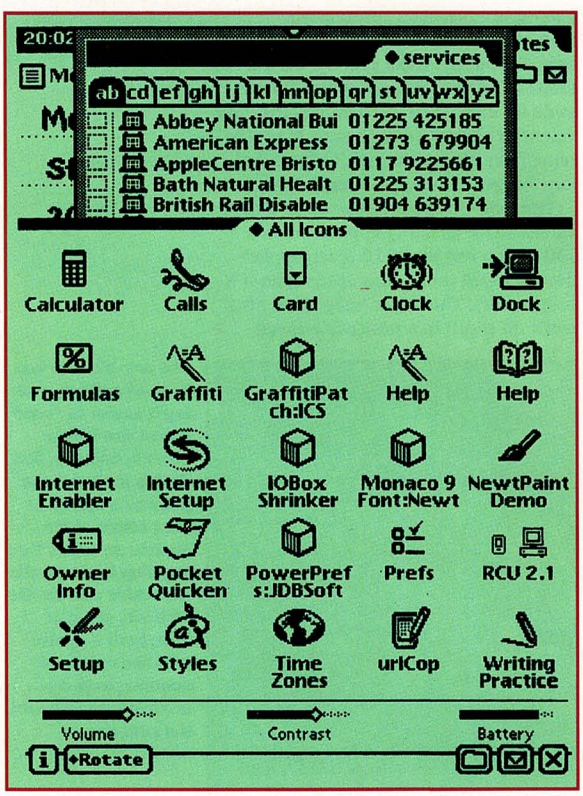
Into the future?

The Psion 3c and the USR Pilot handheld devices all weigh less than a third of any of the MessagePad range, while handheld devices using Microsoft's new *Windows CE* are also coming into this lucrative market. If the Newton OS is to have anything larger than a Mac-size share of the Personal Digital Assistant market, then Apple must move quickly to deliver new implementations of the hardware, and to encourage others to do likewise.

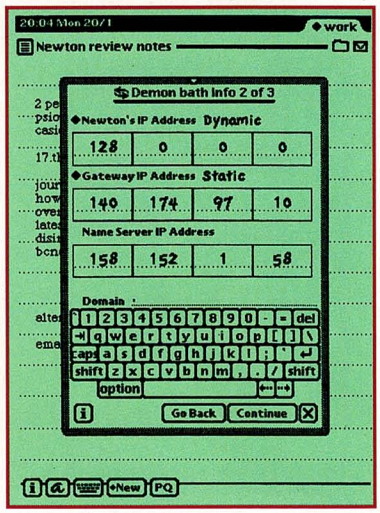
History has shown that dominating an entire market is more than Apple can do by itself – encouraging licensees to pad out the Newton line will do far more for the platform in the long run. The Newton team are working on a reference modular design that should make it much easier for other companies to license the Newton technologies they want and so build more diverse implementations. This would have a clear advantage over rival machines locked into one basic design.

Until that day, though, the MessagePad 2000 is a worthy competitor. The 130 does add several enhancements over earlier models, especially the improved screen, but they all seem like minor patches when compared against the 2000. The MessagePad 2000 offers many advantages over traditional portable computers. With its lower price, light weight and terrific performance, it just about offers enough features to satisfy most people's mobile applications.

Furthermore, it improves significantly on those things that are uniquely Newton. For instance, the handwriting recognition engine, while not as immediate as a piece of paper, is fast enough for many note-taking applications – with the option to defer recognition taking up even less space than before. The 2000 is still pricey compared with a Psion or USR Pilot, but with its combination of value, functionality, and ease of use, the 2000 could be the MessagePad that wins the technology truly wide acceptance. **MF**



Keep a handy list of all those numbers that you can't live without, plus all the other applications listed above. You'll wonder how you ever coped with life before your MessagePad...



Limited connectivity is no longer an issue now that the MessagePad supports full point-to-point protocol (PPP) dial-up. You can open up services like Demon Internet, UK Online and CompuServe, while Hardy Macia's *Aloha* still works with AOL.

MessagePad 2000

A real leap ahead, the 2000 is fast, well designed and easy to use. The only problem is the rather extravagant price.

Features	**95%**
Ease of use	**90%**
Documentation	**80%**
Value for money	**80%**

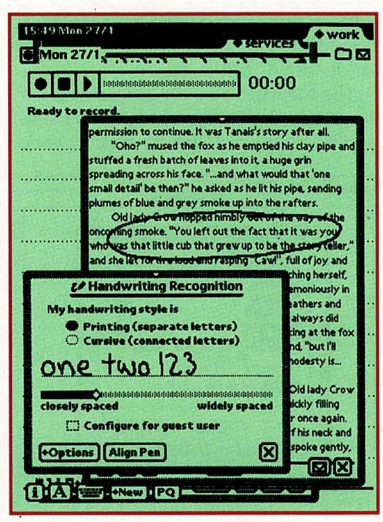
MF rating 89%

MessagePad 130

A definite improvement, but it pales against the 2000. The price tag is also far too high.

Features	**83%**
Ease of use	**85%**
Documentation	**80%**
Value for money	**65%**

MF rating 72%



The MessagePad's handwriting recognition is fast and straightforward, taking less time to learn your style than before. If you enter a word that the Newton OS does not recognise, you can teach it by altering individual letters rather than having to type the whole thing again.

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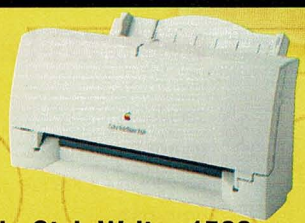

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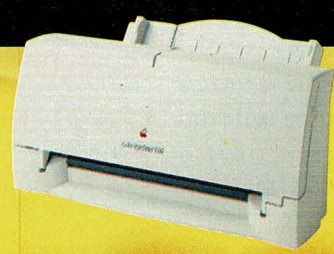

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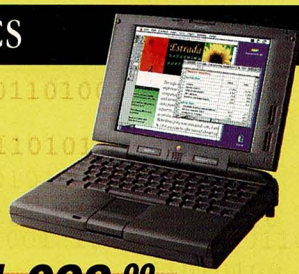

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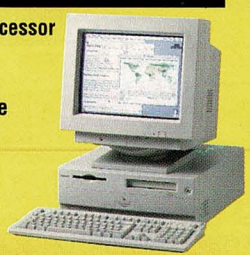

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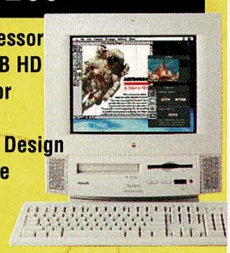

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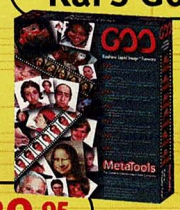

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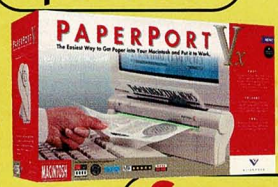

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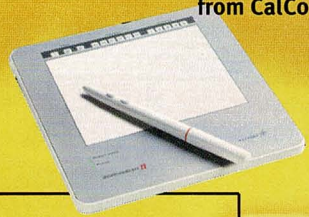

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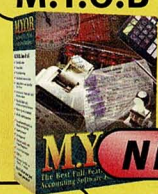

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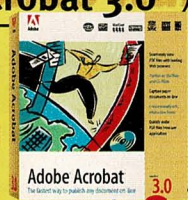

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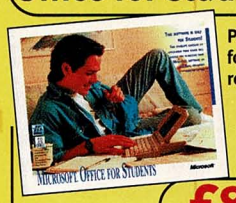

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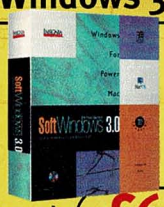

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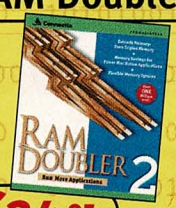

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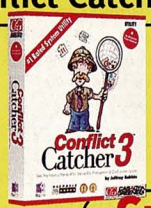

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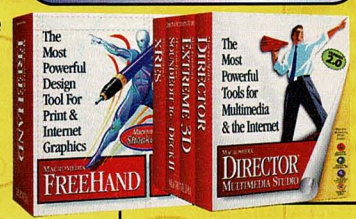
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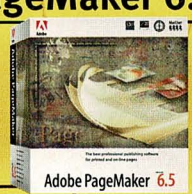

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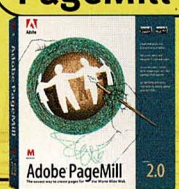

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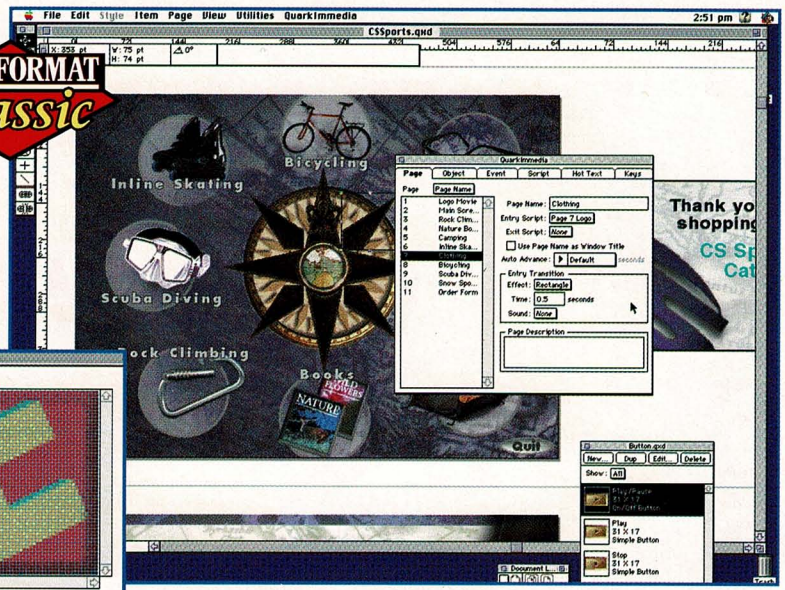
QuarkImmedia

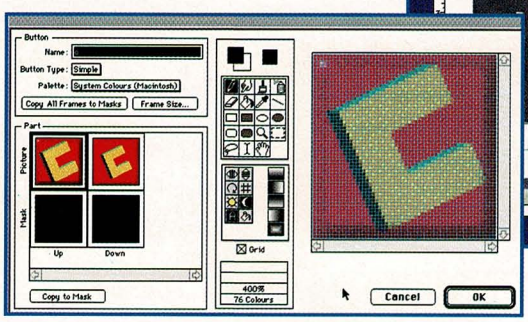
If you've been longing for a multimedia application which can produce dynamic Web and CD-ROM projects, Martin Ollman thinks this new release may be the answer to your prayers...

MACFORMAT Classic



The Immedia palette is where it all happens – from here you can compile your project and add sounds and video too.

Immedia's **button animation palette has many functions that help you create multi-state buttons (buttons that might change appearance when your cursor passes over them *and* effect different results, depending on how you use them.)**



ON THE CD

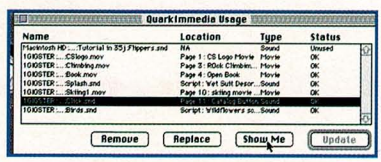
Save-disabled versions of *QuarkXPress* and *Immedia 1.01*

The strategy behind Quark's new publishing tool is an obvious attempt to once again stamp its dominance on the desktop publishing industry. The eagerly-awaited *QuarkImmedia* XTension is being heralded as the tool which will give you access to interactive authoring, CD-ROMs and Internet publishing.

Since desktop publishing has now become part of a global network, applications are increasingly catering for online media. The accolades achieved by *QuarkXpress* have been starting to fade with the barrage of alternative applications – it looks as if *QuarkImmedia* may have come along at just the right time.

To use *Immedia* you first have to have *XPress*. With the new XTension, Quark invites you to take the leap from static print design to dynamic, interactive media – and all in all, the jump isn't too painful. Launch *XPress* with the XTension installed and the only noticeable difference is a new palette and an extra menu – certainly not as daunting as opening Macromedia's *Director* for the first time.

To assemble a project, you simply design a normal print document using traditional page-layout tools and set the page specifications. You use the same tools, text and picture boxes as in *XPress* – but, when it comes to the interaction, sound animation or QuickTime movies, things start to become slightly unfamiliar even to the most experienced of *XPress* users. You control your project from the *Immedia* palette, using the **Page, Object, Event, Script, Hot Text** and **Keys** menus – all in one palette, which is something to get used to. The beauty of *Immedia*, though, is that once you have the pages and objects in place, very little typing is required to add functionality – you simply link objects, events and scripts together by selecting commands from the pull-down menus.



Just as in *XPress*, the picture, sound and video files are updated and changed from the Usage panel.

You can also test your project at any point by selecting the **Engage** function from the **QuarkImmedia** menu. You then get to watch a "debugger" list of what is happening to your work in the background while your project runs. telling you what your project is about to do, or if any errors are about to occur. Once you have finished and exported your project, other users view it using the freely distributable *QuarkImmedia* viewer.

Projects use a 256-colour palette, which optimises speed and memory use – and ensures that your projects look good on systems which cannot display more than 256 colours. A well-managed 256 palette will look just as good as a 24-bit one, so plan carefully before you embark on a project. *Immedia* uses images at 72 dpi, because they only ever appear on the screen. However, you may run into problems when you export your projects, because all the images will be dithered to 72 dpi and remapped to the current colour palette.

And what about sound? Well, this comes in SND, AIFF, AIFF-C, WAV and uLAW formats. When it's playing sound, *Immedia* loads one second into a buffer (a section of memory), then hands it over to the system to play. It then loads the next second, and so on. *Immedia* can handle up to two sounds at once, but doubling up will have an effect on the performance. If you want to compress your project for the Web, sound should be 8-bit monophonic, 11.025kHz or less.

QuickTime movies are treated as external files, and must be compressed if you do not want the movie to skip and jump around. There is an option when you export a project to resample the QuickTime movie to the palette used in your project, but doing this does reduce the image quality.

Upgrades

To use *Immedia*, you need to have the latest version of *XPress* – 3.32. If you have version 3.3, you can download the upgrade free of charge from the Quark Web site. If you have a previous version of *XPress*, contact Quark for details of how to upgrade.

Here's one I made earlier

Immedia comes with many extras which come in very useful when creating interactive projects – animated sequences, animated cursors, button libraries and

static cursors, plus over 100 sound effects such as clicks that can be imported into your project, and even screen wipes.

You can create and edit buttons (even give some more than one function) using the **Button Editing** window, with similar windows for editing animations and cursors. The editing windows enable you to draw pictures, create masks and assign attributes to the button library and animation and cursor documents. There's a full set of drawing and animation tools, including mask and effects buttons (**Flip, Rotate, Blur, Lighten),** so you should find that you can create graphics and images quite quickly. It only takes a few minutes to get used to the tools.

Animated cursors can also reflect users' actions, indicating various states of interactivity. For example, when you want to select a file, the hand cursor can clench as if it were grabbing it. Neat.

When you come to export a project, you have a number of options to choose from. First, you can export the project for a specific platform – Windows or Mac – and for the various system and processor flavours they come in. Alternatively, you can choose to export the file optimised for CD-ROM, hard disk or Internet viewing. You can also embed the viewer into your project, making it completely self-contained. This will add around 1Mb to the size of the document.

The Internet made easy

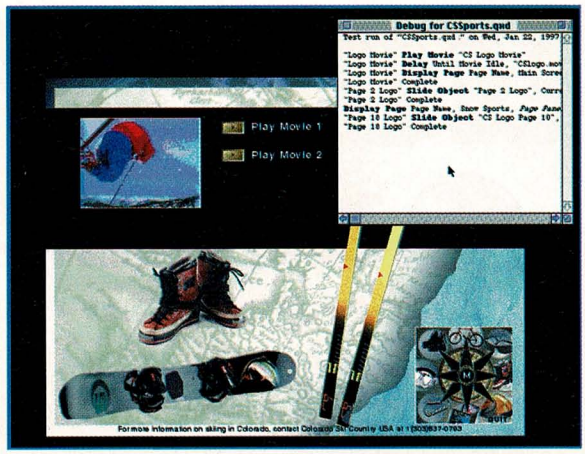
If you're creating for the Web, the Net functionality built into *Immedia* enables you to create Web pages without having to bother with the design constraints of HTML – limited text styles and paragraph formats, and so on. The viewer can act as a standalone Web browser and treats projects much like HTML pages, using standard HTTP to access pages containing graphics and links. The viewer can also be configured to use *Netscape Navigator* as a helper application. When you access a non-*Immedia* page (which will be often, until it is adopted more widely), *Netscape* will take over and display it as normal.

The main difference between Web pages and *Immedia* projects is the richness of the content. There are no text or formatting restraints with *Immedia* – what you lay out when you create a project is what users see on the Internet. *Immedia* converts text to graphics, making it irrelevant what computer the user has, what fonts are installed, and so on. For the user, it offers in one package everything that you'd otherwise have to spend time and money to get by seeking out the very latest version of a browser and all its available plug-ins.

Users will inevitably still face the universal bandwidth issue – in other words, slow connections, any glitches in the line, and so on. But *Immedia* excels here: a video or animation element can be cached within *Immedia* and used in other pages of the project without being downloaded again. *Immedia* also minimises delays by beginning to download subsequent pages of a project as soon as it has finished the first one.

QuarkImmedia enables you to bridge the increasingly wide gap between print and on-line content. It is bursting with features, and its potential is huge. With the announcement of new features for version 1.1 coming shortly after its debut, *Immedia* is set to become another landmark application from Quark. Features promised for v1.1 include support for *Photoshop* plug-ins and page-based colour palettes, meaning an individual palette for each project page. On the Internet side, the inclusion of an **Internet Actions** menu in the **Immedia** palette will ensure that you turn to *Immedia* for design reasons as well as Internet application reasons. Version 1.1 will also support *Netscape* plug-ins, meaning a whole new level of compatibility.

It's already hugely powerful, brilliantly functional and as easy to use as anyone could expect. Quark shines once again in the desktop publishing industry. **MF**



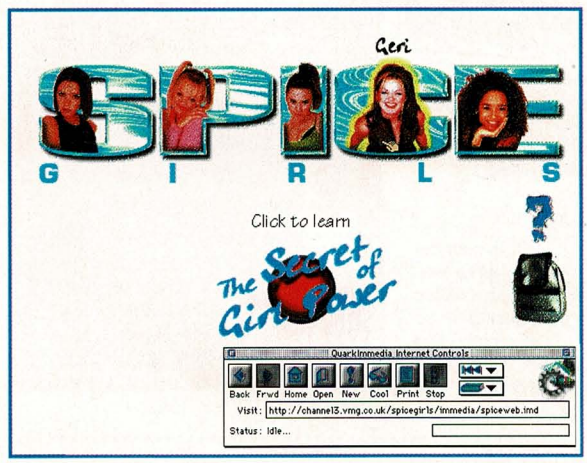
The "debug" window enables you to check commands and scripts as they are executed.

QuarkImmedia

Great features, easy to get the hang of. The price is terrifying, but the results are worth it. This may well be the product of 1997.

Features	**90%**
Ease of Use	**96%**
Documentation	**98%**
Value For Money	**80%**

MF rating 91%



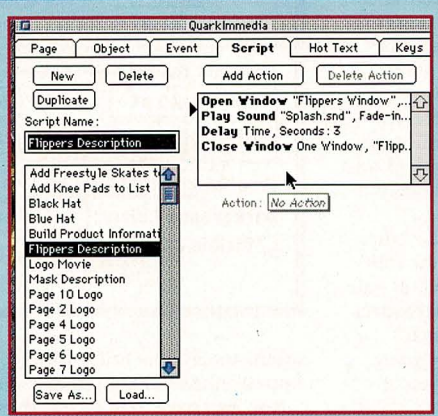
This is one of the first Web sites to use *Immedia*. Spice Web at http://www.vmg.co.uk/

It's all in the new Immedia palette

The Page menu
You can navigate the project from this menu, as well as assigning "entry" and "exit" scripts. You can also make the project "auto-advance" after a given time period, and transitions (such as fade) can be applied.

The Object menu
This shows types of objects and their status on a page – objects can be hidden or present when you first access a page. Object types are defined and preferences added here, enabling you to loop and pre-load movies, set animation frame rates and paths, and create pop-up menus.

The Event menu
This is where you add user-initiated "events" and specify what actions each will trigger. Animations, sounds and movies can all be activated on various actions, such as "mouse enter" or "double-click", a Web address can be accessed, a page printed and so on. All the interactive functions are listed within menus.



All the *Immedia* controls are accessed from this palette – you simply click on the appropriate tab to bring the relevant tools to the front. Want to try it for yourself? There's a step-by-step guide over the page to creating a project with our CD demo!

The Script menu
This is where you combine sequences of normal *Immedia* actions to create scripts (open a window, move it to the top corner, then close it after five seconds). You don't have to learn scripting commands to do this, either: it's all controlled via pull-down menus.

The Hot Text menu
Define interactive text and assign actions to it. Also, as in HTML, you can make Hot Text into hyperlinks through which users can access other Web documents or project pages.

The Keys menu
This menu enables you to assign Key Commands. For example, you might specify that when the user presses **[command] 3**, they should be taken to page three.

Go interactive!

ON THE CD

Immedia files and source material in the How-To's folder

Top DTP program *QuarkXPress* can now produce multimedia with its *Immedia* add-on. Richard Hill guides you through the two programs as you make an interactive version of MACFORMAT.

With the addition of *QuarkImmedia*, the renowned desktop publishing package *QuarkXPress* enables you to become a true multimedia publisher. The Quark combination is especially useful when you want to create for several different media at the same time. If you already produce printed material with *XPress*, you can easily adapt it for CD-ROM or the Internet with *Immedia*.

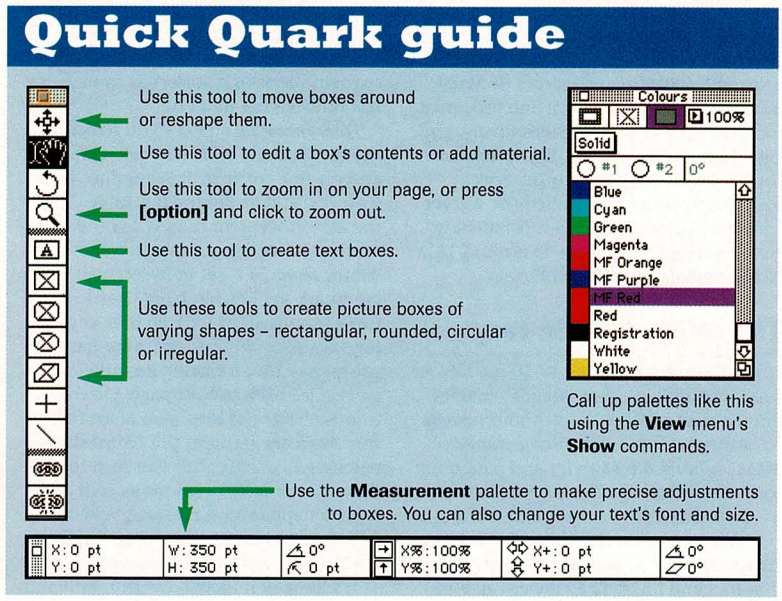
We're going to show you how easy it is with a half-hour reconstruction of two MACFORMAT pages, making them ready to redistribute as an interactive slide show on our Cover CD. The disc also contains a demo version of *QuarkXPress* with *Immedia* installed in its **XTensions** folder, plus "MF Bryce Feature", a modified version of the *XPress* document used for one of the features in MACFORMAT 43. (We've had to modify it because we are not allowed to distribute the fonts we use to produce the magazine. You'll simply need Helvetica, Times and Zapf Dingbats installed on your Mac.) We've also included three *Immedia* documents, showing the Project at various stages of completion, and the finished program.

Before: we laid out this guide to *Bryce 2* for MACFORMAT 43 using *QuarkXPress* on the Mac...

MacFormat
14
Select the tunnel, then hold down [shift] and select the mountain. Choose Group Objects from the Object menu. If you were to render the picture now, you should see that

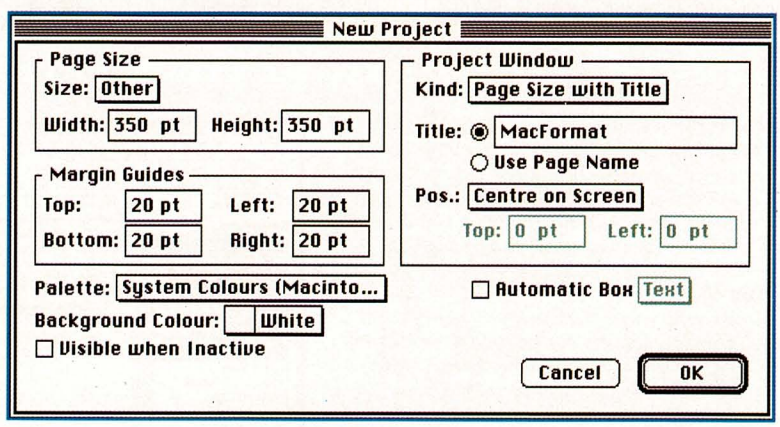
After: now the addition of *QuarkImmedia* means we can also produce this interactive version of the same guide with *XPress*.

Quick Quark guide



1: Set up a Project

Launch the *QuarkXPress* demo, choose **New** from the **File** menu and pick **Project** from the choices offered. A Project is the *Immedia* equivalent of a basic *XPress* document. Follow the settings we show here for the **New Project** box: when you've finished the Project, you'll have a square with its own title bar, enabling you to drag it around your Mac's screen.



Rght: use the settings we've shown here to start up your own *Immedia* Project.

Choose **Preferences** from the **Edit** menu and pick **General** from the sub-menu. Here you should change the scale for **Horizontal** and **Vertical Measures** to **Points** – the millimetre or inch measures you rely on while designing for paper are of little use now you're designing for the screen.

It's easy to use the same look across related projects in *XPress* and *Immedia*. For example, the text styles and custom colours MACFORMAT uses every issue are already set up in "MF Bryce Feature" document. Use the **Colours** and **Style Sheets** tools in the **Edit** menu to **Append** the settings from that file.

Now you need to to modify these styles to suit reading the text on the screen. Select **Style Sheets** from the **Edit** menu, then **Captions,** the style you'll use on most of the text. Choose the **Edit** option, then **Character.** The type **Size** here is fine for reading on a printed page, but much too small for the screen. Change **Size** to **12 pt**, then click on **OK.** Next, choose **Formats** and increase the leading to **15 pt**, which will give the text room to breathe.

After clicking on **OK** twice to get back the main **Edit Style Sheets** box, click on **Save.** You're now ready to start designing pages.

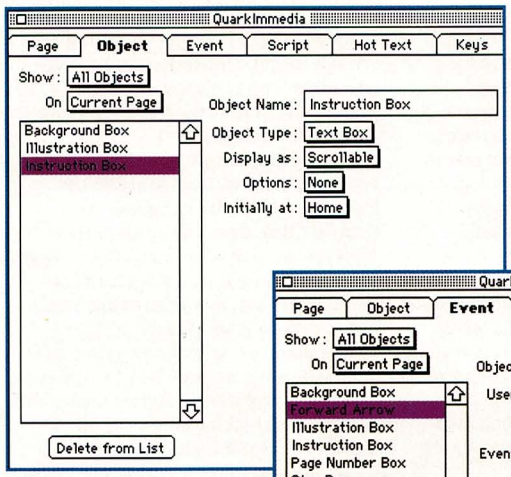
2A: Establish a grid design

Open "MF Project A" to continue from this point.

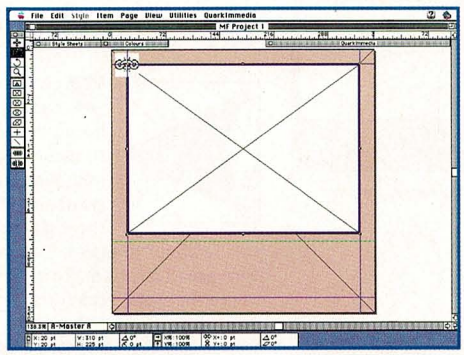
Now that you've started a Project, choosing **Engage** from the **QuarkImmedia** menu will activate the program for a test run. Disengage using the **F15** function key (which you will only have if you have an extended keyboard – bad choice, Quark!)

Most of the pages you're going to use in this Project will follow exactly the same layout or grid, so it's easy to use *XPress's* master page option to set up the basic structure just once. The same elements can then be reused on every page. First use **Display** in the **Page** menu to move to the page **A Master-A**. Everything you do here will affect any page which has been set to follow the **A Master-A** format.

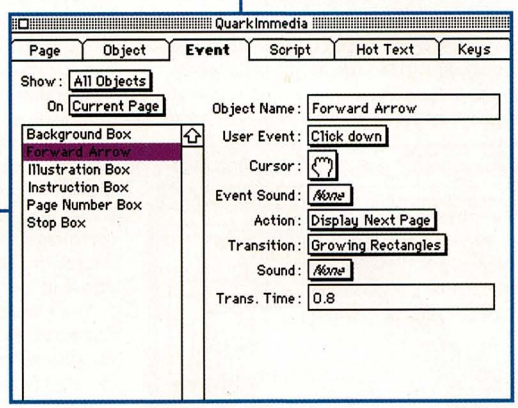
Now you're going to make the boxes for your grid, using the *Immedia* palette. You need to name every box you make: click on it, then select the **Object** tab in the **QuarkImmedia** palette and type in an **Object Name**. You'll see the names we've used for each box, plus the settings you should enter into the **Measurement** palette, below.



The *Immedia* palette is where you assemble all your commands for the objects on your pages, making them interactive.



If you move to a master page, you can set up a basic design which can be repeated across any pages you create.



In the **Events Tab**, clicking on any object on the left-hand list means you can set up basic commands for it with the options to the right.

2B: Create the basic elements

Background Box
Make with **Rectangular Picture Tool**
X: 0 – Y: 0 – W: 350 – H: 350

Select **Modify** from the **Item** menu, then make the **Background Colour MF Orange** with **Shade** at **20%**.

Page Number Box
Make with **Text Tool**
X: 20 – Y: 255 – W: 35 – H: 35

Use **Modify Item** to change the **Vertical Alignment** to **Centred** and the **Background Colour** to **MF Orange** (leave **Shade** at **100%**). Use the **Style** menu's **Colour** option to make the text **White**, then use the **Measurement** palette to centre the text. Make the font **Times, Style Bold, Size 20 pt.**

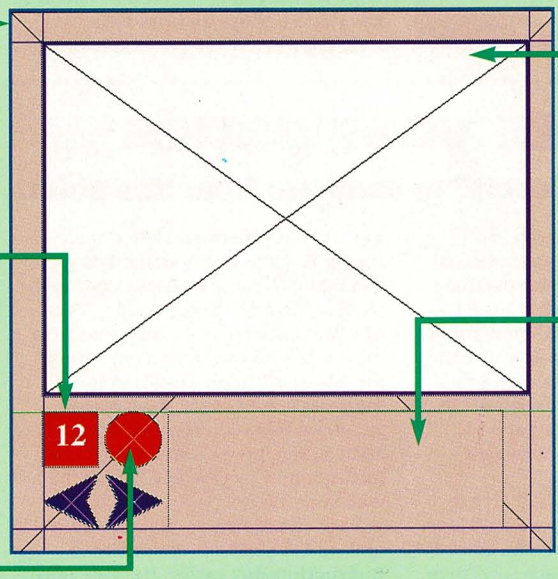


Illustration Box
Make with **Rectangular Picture Tool**
X: 20 – Y: 20 – W: 310 – H: 225

Here you can use the margin guides to position the box quickly but accurately. Select **Frame** from the **Item** menu, and make the box frame **2 pt** thick. Change the **Colour** to **MF Purple.**

Instruction Box
Make with **Text Tool**
X: 100 – Y: 255 – W: 213 – H: 75

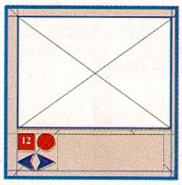
The odd width measurement arises because you're leaving room for a text scroll bar which *Immedia* can generate automatically. After you've named the box under the **Object** tab, select **Text Box** from **Object Type** and make it **Scrollable** with the **Display As** option which appears consequently. *Immedia* constantly modifies options within its tabs based on the choices you've already made.

Go back to the conventional *XPress* tools and use **Modify Item** to make the box's **Text Inset 3 pt** and its **Background Colour None.** This will let the pale peach background show through and keep your text away from the scroll bar, which will appear to the right of the box when you actually start playing the Project.

Stop Box
Make with **Circular Picture Tool** – hold down **[shift]** as you create the box to make it a perfect circle
X: 60 – Y: 255 – W: 35 – H: 35

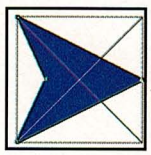
Use **Modify Item** to make the **Background Colour MF Red.** Now you're going to use *Immedia* Events for the first time. Use the **Object Tab** to name the box "Stop Box", then move to the **Event Tab** to set its behaviour. You should see that **Stop Box** is highlighted in the **Object** list on the palette's left. Choose **Click down** from **User Event** – indicating that the program should react if the user clicks on the **Stop Box.** Set the reaction with the **Action** option: here you need to select **Page** from the long list of categories, then pick **Display First.** Once the Project is complete, clicking on the **Stop Box** will make the program show the first page.

More options should now appear, enabling you to set up a special effect for moving from page to page. Choose the effect that appeals most to you from the **Transition** list; you can also decide how long the switch should take (keep it below a second). Finally, you might like to have the **Cursor** change shape as your program user clicks his mouse button, just as an extra subtle touch. It will already change to show when a box is interactive.



So far so good!

3: Add direction controls



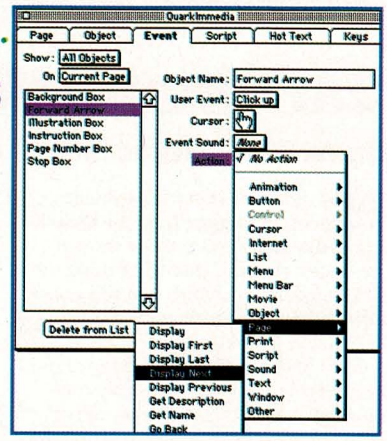
You're not quite finished yet, because you still need to make two arrows to take your user backward and forward through the pages you're about to make. Use the **Irregular Polygon Tool** to make an arrow pointing to the right, which should fit within a 35 x 35 pt square. You could briefly create such a square to use as a guide while you're creating the arrow.

Start by clicking to make an origin point, then move and click to draw your arrow. Return to the origin point and click to complete the shape. If you're not thrilled with the arrow's proportions, use **Reshape Polygon** from the **Item** menu to adjust positions of the points. Try to make it symmetrical, with the point exactly halfway (17.5 pt) down the arrow's height. Untick **Reshape Polygon** when you're happy. Now use **Modify Item** to make the **Background Colour MF Purple**.

Use the **Object** tab to name this box **Forward Arrow**, then move to the **Event** tab to specify its behaviour. Choose **Click down** from **User Event**, then use **Action** once more. Select **Page** from the list, then pick **Display Next**. You can also set up a **Transition** and **Cursor** shape if you like.

You also need to make an arrow to take your program user back a page at a time, but using *XPress* cleverly makes this much easier. Making sure your arrow-shaped box is still highlighted, use the **Item** menu to make a **Duplicate**. Now use **Modify Item** to change its **Box Angle** to **180 degrees**, flipping the arrow in the other direction.

You should find that a new object, **Forward Arrow copy**, has appeared in the **QuarkImmedia** palette's **Object** list. Highlight this item while in the **Object** tab and rename it **Back Arrow**. If you now move to the **Event** tab, you'll see that **Back Arrow** retains all the settings you specified for **Forward Arrow**. All you need to do now is change the **Page** setting within the **Action** option to **Display Previous** and you have your second arrow. As you progress to using more objects and employing complex scripts within *Immedia*, you'll grow to love this ability to duplicate events and scripts along with other attributes.

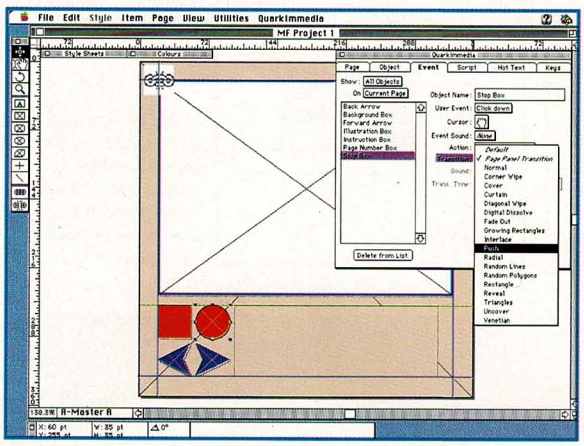


Give the **Forward Arrow** box an **Action** to carry out with the **Events Tab**. We need it to trigger a move to the next page.

Position your **Forward Arrow** box at **X: 60, Y: 295**, and **Back Arrow** at **X: 55, Y: 330** – remember the box's origin point has been flipped with the rest of it. This gives you a basic grid design for the slide show pages.

It isn't compulsory to create *Immedia* elements such as these slide show controls purely within *XPress;* you could easily use an image-editing program such as *Photoshop* or *xRes SE* (free with last month's double-CD issue) to design more sophisticated arrows and buttons, then create square picture boxes in *XPress* and use the **File** menu's **Get Picture** command to drop in your images.

After you've set up an object to trigger moving to another page, you can pick a transition effect to make the switch look more professional.



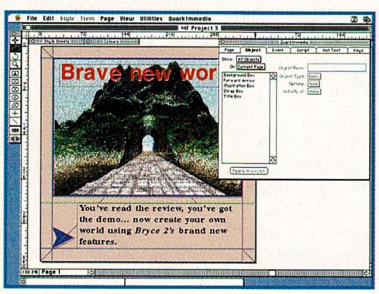
4: Create your pages

Open "MF Project B" to continue from this point.

We've now made page after page with different text and images, but all based on our original master page design.

Now you're ready to create more pages and introduce your material. Make sure *XPress* is displaying page one of your document, then select **Insert** from the **Page** menu to add more pages after page one. If you want to create the whole show, you'll need to add 18 pages – one for each stage of MACFORMAT's *Bryce* guide. Adding three or four pages to work on will demonstrate *Immedia's* capabilities just as well.

Start by clicking in the deep orange box (labelled **Page Number Box**). Enter "1", then move to page two and enter "2", and so on. Next, for each successive page from the first, click on the picture box labelled **Illustration Box**, then choose **Get Picture** from the **File** menu. You'll find all the images you need in the "Source Material" folder on the Cover CD. You'll need to make adjustments in the image sizes as you go along, using the **X%** and **Y%** commands in the **Measurement** palette. Most of the pictures will work well at around 38%, and you can move them within their frames simply by grabbing hold of them with your mouse.



The title page introduces anyone who uses your Project to the article, and only needs one arrow to move on to the next page.

Back on page one, you should now click on the text box you labelled **Instruction Box** earlier. Use **Get Text** in the **File** menu (the **Get** command changes according to whether you've selected a text or a picture box) to load in the appropriate text file – "Step 01" for page one, "Step 02" for page two, and so on. As you do this, use **Select All** from the **Edit** menu to highlight each piece of text, then use the **Style Sheets** option in the **Style** menu to change its style from **Normal** to **Captions**.

Now you need to make a title page. Move back to page one and select **Insert** from the **Page** menu. Use the options there to add one more page, this time before page one. Making sure you're viewing your new first page, delete **Stop Box**, **Page Number Box** and **Back Arrow**, then move **Forward Arrow** to the position **X:20, Y:95**. Adjust the main text box so that it begins at **X:65** and has a width of **W:265**, then use the **Object Tab** to make this box **Display As Simple** rather than **Scrollable**. Finally, **Get** the text file "Intro Text" and choose the style **Strap**.

The image you need to **Get** for this page is also in the Source Material folder; it's called "Title Pic". You might also want to create a text box within the picture box and make a title for the article.

There are still a few tweaks you can make to tidy up the Project:

- On page one, select the **Page Tab** and choose an **Entry Transition**. This is the first page your user will see, so start with a bit of a flourish.
- On the last page, delete the **Forward Arrow** – it won't work here anyway.

There are other small touches available as you export your *Immedia* Project as a finished program (a feature not available in the demo). You can set your images to 256 colours to save space, for example – see pages 76–7. During the **Export** process, you can also decide how you wish to save the program. The options include formats tailor made for CD-ROM or the Internet. **MF**

PRICE	£70.48	**ON SALE**	Now	**CONTACT**	Computers Unlimited on 0181 358 5857	**WEB SITE**	http://www.connectix.com/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** Any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.0 • **HD space:** 10Mb • **Screen:** 640 x 480 • **Colours:** 256		
Extras: CD-ROM drive, Connectix QuickCam (optional)							

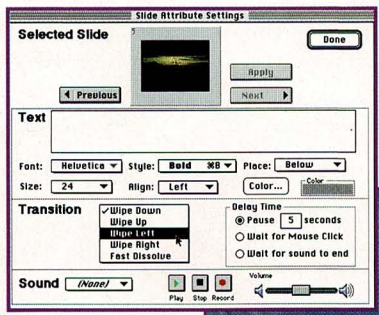
Connectix PhotoMate

Could there be an end to prints with stickers on that read "Camera Fault"? Rod Lawton hasn't just seen the future, he's got a picture album to prove it...

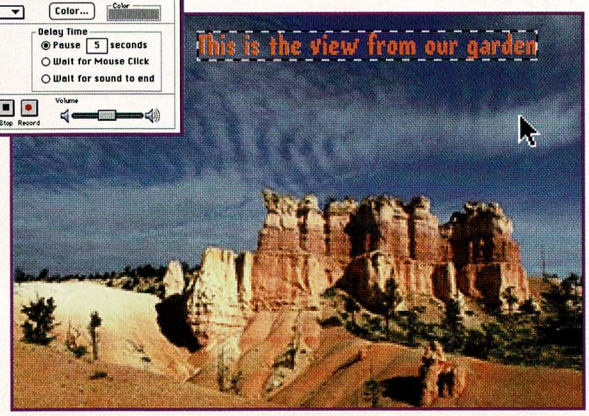
Connectix PhotoMate
Take Picture
Click here to acquire an image
Enhance Picture
Click here to open and modify an image
View Slide Show
Click here to present your images
Open Album
Click here to open a catalog of images

PhotoMate's **main screen neatly separates the program's four main functions. If you don't have a Connectix QuickCam, though, you can forget the *Take Picture* option.**

The photo-editing tools are basic in the extreme. They're fine for simple corrections, but not much use for creative manipulation.



The slideshow feature is quite sophisticated. You can use it to build some surprisingly slick automatic presentations.

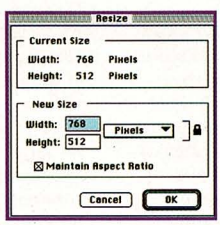


You can add titles to your snaps, but once the file is saved you can't change them.

Digital photography won't take over from traditional photo-sensitive materials just yet. There are a couple of little technological difficulties to resolve first: increasing the resolution of digital cameras, for one thing, and speeding up computers for another. We'll also need colossal hard drives to store all these images, and ultra-high-res printers to print our pictures out on.

However, none of these things are very far away. Professional digital cameras are now approaching traditional film media in their resolution, while every 35 minutes or so, someone at Apple works out how to further double the speed of a PowerPC processor. Disk storage space shouldn't be a problem – and don't forget that high-density CDs are not far off, either. And how much longer will it be before all the CDs we use are "writeable" too? As for printers... Well, the latest generation of colour inkjets and "solid ink" machines produce results which are beginning to rival those of the prints you get back from the lab.

Which is why programs like Connectix *PhotoMate* are soon going to be very big.



Photographing a special occasion? Why not turn your snaps into a multi-media experience?

With software like this and a digital camera, you can dispense with the photo lab altogether. You don't have to wait for your prints to come back, and you can crop, edit, adjust and otherwise polish up your snaps until they're fit for family consumption. And even if you don't have a digital camera, you can still get your snaps stored on PhotoCD or – what the heck – get yourself a scanner to digitise your prints.

Connectix *PhotoMate* is designed to help you edit and organise any digital snapshots, but it's aimed particularly at owners of Connectix QuickCams. The software hooks up to the QuickCam directly, and displays a preview of your picture in its main window. If you don't like the software's automatic brightness setting, you can set your own manually. You can also change the picture size, zoom in on the central detail and even take multiple exposures. And if you want to be in on the shot too, you can set a delay with the self-timer.

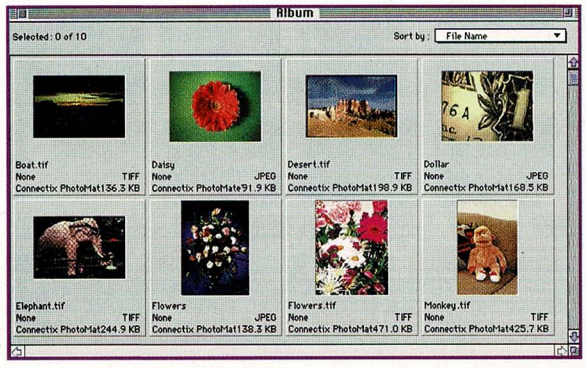
If you don't have a QuickCam, you can import picture files to work on. These can be PICTs, TIFFs, JPEGs or Windows BMP format. What, no PhotoCD import option? That seems a surprising omission in a program aimed at manipulating digital photographs. To edit PhotoCD images, you'll first need to translate them into one of the formats above using another application *(Graphic-Converter* is good – it's on our Cover CD), and this is a pain in the neck.

Image editing

Once you've got picture files stored on your Macintosh, you can then open and edit them. The editing tools aren't exactly on a par with *Photoshop*, but they enable you to do the basics.

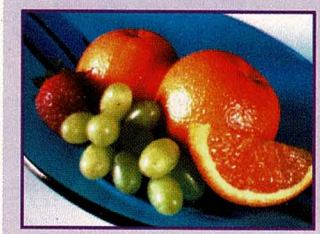
For a start, if your picture has unwanted detail you can crop it out. You can also resize your picture by choosing ➤

You can store chosen pictures in an "album" which displays them as thumbnails and can sort them according to user-defined categories.



In the name of art...

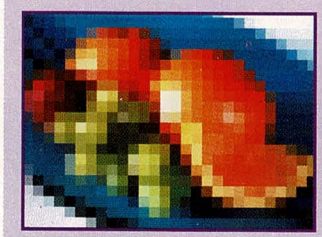
Here are the five "artistic" effects you can apply with *PhotoMate*. Is it compatible with *Photoshop* plug-ins? *Photoshop* what? Sorry, never heard of them. *PhotoMate's* effects filters might mean well, but they'd have to be about a hundred times better to compete with *Adobe PhotoDeluxe's*.



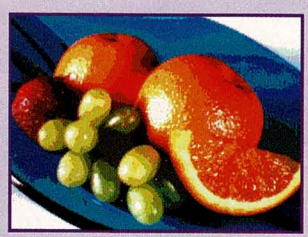
Our original image. It's okay, but we're feeling in a bit of a creative mood, so maybe we should try a few experiments.

Hmm... the "antique" look turns out to be about as subtle as a brick between the eyes. Maybe we should try something else.

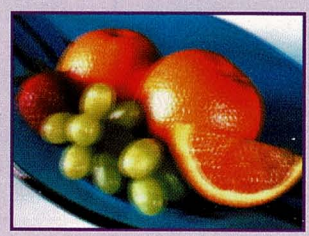
Embossing. Hmm, interesting effect, isn't it? The first time you see it, that is. We want something with more long-term appeal.



The mosaic effect should be interesting. Unfortunately, the result looks more like a bunch of giant pixels than mosaic tiles.



Mmm... the posterise effect. Why do people posterise images anyway? We're not too sure about the artistic value of this one.

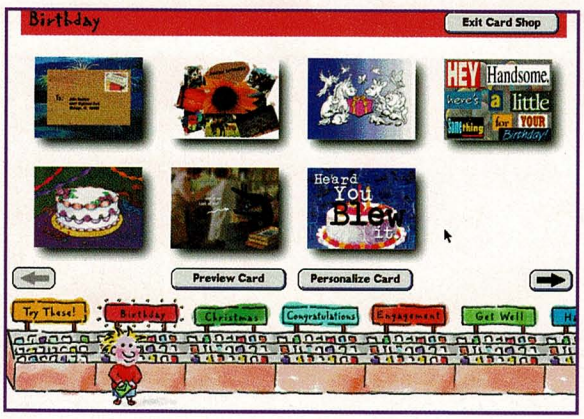


So this is what a bowl of fruit would look like during an earthquake? Or falling from a tall building? Or out of focus?

new dimensions in pixels – the width and height can be changed independently too, or you can elect to maintain the original aspect ratio. Or, if you suffer from "sloping horizon syndrome" (check with a doctor to make sure your legs are the same length), you can rotate your digitised image until verticals and horizontals really are just that. And if you're feeling adventurous at this point, you can embark on some simple photo-manipulation. By selecting, copying and pasting areas of your image you can copy frogs' heads onto your relatives' bodies and create other such vastly amusing visual jokes. Or you can superimpose images of your friends on pictures of exotic locations, or place a photo of your house against a backdrop of lush woodland before sending it to the estate agent.

To do this, you need to be able to select areas of the image pretty accurately. *PhotoMate* has the usual lasso (freehand) and marquee selection tools, but they're no use for even faintly complex outlines. Instead, you use the magic wand tool, which selects areas of similar colour. You can adjust its tolerance, by pressing **[shift]** and clicking to select multiple areas. In this way it's possible to create cut-outs reasonably quickly, but *PhotoMate* doesn't have the finesse or control of other image manipulation programs on the market.

Connectix also gives you a preview of its *QuickCards* program for creating multimedia greetings cards.



Unleashing the artist

If you feel the need to add to your pictures, you can use a handful of simplistic paint tools to do it. There are six brush sizes to choose from and a paint bucket for filling selected parts of the image with a single, solid colour. Not very sophisticated. The brush tool doesn't even offer anti-aliasing (where the boundary between painted areas and the underlying image is softened). However, there is a manual "blur" tool which you can drag along lines and boundaries to achieve the same effect. The blur tool is available in six sizes, but only the smallest sizes are fine enough for subtle changes. You can zoom in to deal with fine detail, though.

You can add text to your images, too, choosing font, size, style and colour at will. And the text *can* be anti-aliased, so it's possible to create quite slick and smooth-looking titles and captions for your pictures. Make sure you've got the text how you want it before you save the file, though, because once it's saved your additions are merged with the image.

When you're satisfied with your image you can add a frame in one of three styles and in any colour you like. You can even combine frames if you want something a bit more ornate.

Photo first-aid

Photo-montages and witty captions are all very clever, but one of the main strengths of any picture-editing program is the opportunity to put right many of things that can go wrong when you take the picture.

PhotoMate can correct moderate exposure errors, it can compensate for the colour of the lighting (pictures taken under tungsten and fluorescent lighting can display orange and green colour shifts respectively) and it can smooth or sharpen the picture too. The smoothing option is unlikely to be useful, since most digital images are none too sharp in the first place. The sharpen option is handy, though, for just that reason. It can't create detail that isn't there in the first place, but it can emphasise edges and contrast to achieve a much greater "impression" of sharpness.

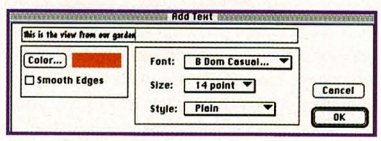
These fine-tuning adjustments are carried out using a window that displays a thumbnail of your original image, together with half a dozen options. A slider control enables you to adjust the strength of the correction.

On top of the basic "correction" tools, *PhotoMate* also supplies a handful of "artistic" effects, including an "antique" look (like sepia-toned photographs), a 3D-embossed effect (you can control its strength), a mosaic appearance (you select the size of "tile" you want), posterisation (which replaces the colours in your picture with a narrow range of tones); and an "earthquake" effect (which creates a kind of motion-blur). Very tasteful, especially if you live in San Francisco... The arty effects, though, are fairly limited, and wear thin quickly.

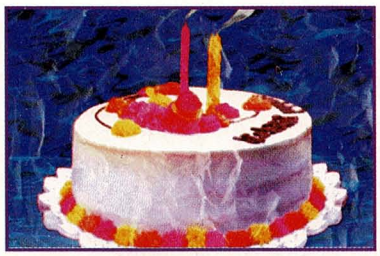
So far, *PhotoMate* is a disappointment as a photo-editing package. But that's not all it does. You can also use it to store your pictures in an album. The album displays pictures as thumbnails, and you can simply double-click on one to edit it. Rather cleverly, though, you can also assign categories, like "business", "holidays" and "leek-growing". You can then sort the pictures in your album according to category.

On top of this you can carry out sur-

You can search for pictures in your album by specifying filenames, modification dates, file types and even file sizes.



You can add text to your pictures to act as either titles or captions.



Pictures can be resized in pixels or by specifying percentage changes.

prisingly complex searches, based on whole filenames, parts of filenames, modification dates and file types. Just as well, really, because you only get one album, and there's no clear way to find the images you need at any one time.

Of course, there's not much point in taking 600 holiday photos without organising a slideshow. But instead of setting up a moth-eaten screen and old projector, you simply gather your family around your Mac monitor and treat them to a professionally-orchestrated, fully-automatic audio-visual experience.

To create a slideshow, simply drag thumbnails from your album onto the slideshow window (you can put them in order later). That done, you can double-click on each slide to set a range of rather slick options. For a start, you can add a title or caption to your photo, choose to have slides "wipe in" (slide in on top of the last) or even appear with a "dissolve" effect. You can also add a commentary if you have a microphone, and set the slide to change only when the sound has finished playing. Cool.

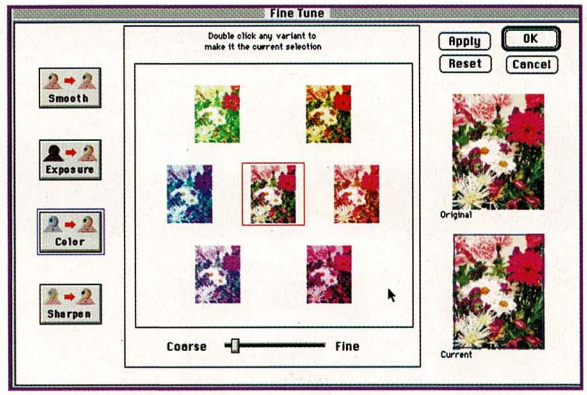
Slideshows are the most impressive part of *PhotoMate*. The tools are simple but powerful, easy to understand and produce professional-looking results.

And there's more...

And what else do you get? Well, not a great deal really. *PhotoMate* is supplied with sample pictures (but only 50 of the miserly things) – and you get 25 sound effects too, and a demo version of Connectix's *QuickCards* application, which creates personalised multimedia greetings cards which run like amusing little slideshows. They look quite clever, but, needless to say, you'll need to dust off the credit card if you want to do more than just look at them.

In the end, *PhotoMate* is just about the feeblest image manipulation program you can buy. Adobe *PhotoDeluxe*, which sells for just a few pounds more, completely blows it out of the water. However, *PhotoMate* scores with its indexed album feature and its extremely good slideshow-creation tools.

If you want to explore the brave new world of digital imaging, but don't know much (and don't really want to know much) about clever image-manipulation techniques, you won't regret buying it. Unless, that is, you catch a glimpse of what your friends have been able to do with *PhotoDeluxe*. **MF**



You don't have to guess at the outcome of "fine-tuning" your pictures – the dialogue previews the results of several actions.

Connectix Photomate

It's pretty basic at photo-manipulation, but creates a nifty searchable picture album and excellent rolling slideshows.

Features	**79%**
Ease of use	**85%**
Documentation	**90%**
Value for money	**81%**
MF rating	**79%**

Connected

Connectix *PhotoMate* can be used with the Connectix QuickCam, which was reviewed in MACFORMAT 45. It received a rating of 85%. If you missed that issue, turn to page 144 for details of how to order a copy.

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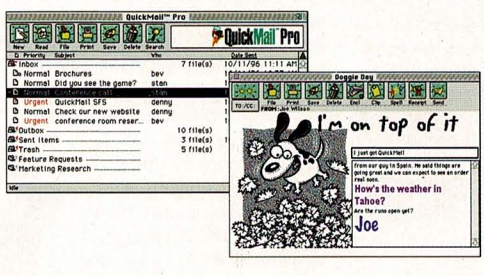
QuickMail Pro



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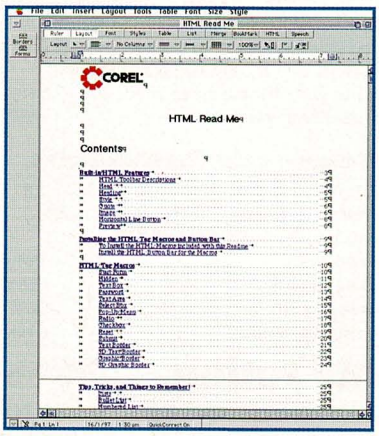
Extras: CD-ROM drive							

Corel WordPerfect 3.51

Despite the rise and rise of games, word processing is still the most popular application for a computer. Derek Smith takes a look at *WordPerfect* and finds out whether it lives up to its name.

This table of contents has been generated automatically. Clicking a title will take you directly to that part of the document.



Hyperlinks

This being the electronic age, you can add hyperlinks to go to another part of the document, a different document or an Internet page. You can also create Web pages, then view them with the bundled copy of *Netscape Navigator 2.02*.

Nisus

Nisus Writer 5.0, the latest version, has just been released, and we'll be taking a close look at it next issue. It's one of the first major products to exploit Apple's OpenDoc component software system, which we also look at next issue...

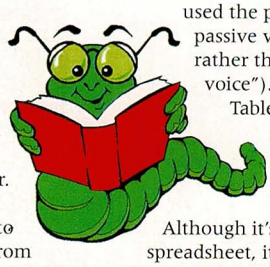
Scripting

WordPerfect is fully scriptable with AppleScript, but not recordable. It also supports drag-and-drop text, both within the program and between programs.

Poor old *WordPerfect* – it has been through a rather unsettling time. After facing crippling competition from Microsoft, the parent company was bought by Novell, which wanted a word processor. Although relatively unknown in Mac land, Novell is almost as big as Microsoft, but it couldn't make any headway with *WordPerfect*. Novell recently sold the word processor to Corel at a huge financial loss.

During this time a number of programmers have fondled *WordPerfect*, but it hasn't had a *major* upgrade. *WordPerfect 3.51* is largely an exercise in repackaging an existing version, but it has been a while since MACFORMAT last reviewed it, so let's see what its newly adoptive parents have done.

Now, word processors have a finite scope – there are only so many things they can possibly do. All the professional ones have a spellchecker, thesaurus, graphics module and indexer. Equation editors are also *de rigueur*. As new versions try to be more clever, they suffer from the law of diminishing returns. Every new feature is of use to fewer people, yet requires more disk space, speed and memory. *WordPerfect*, then, has three aims. First, it has to have all the expected features; second, it should be easy to use; and third, it mustn't get bloated. Let's see if it can live up to expectations.



Perhaps the most useful – and most used – feature any word processor offers is the spellchecker. *WordPerfect's* spellchecker has some useful tricks, such as QuickCorrect, which can correct common mistakes as you type. Although some common errors have been pre-programmed, it's largely up to you to teach it your own foibles. It can also be used for abbreviations. For instance, you can program QuickCorrect so that whenever you type "wp" it replaces it with "WordPerfect". Ideal for lazy typists.

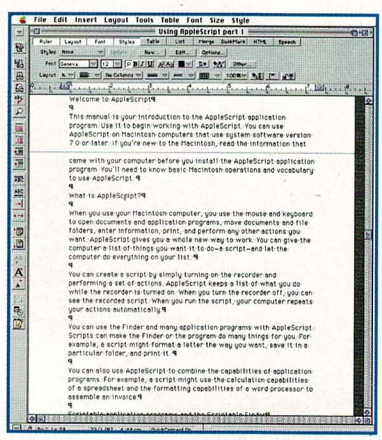
Clever but quirky

However, spellcheckers are old hat, and there is now a growing demand for grammar checkers. *WordPerfect* comes with one built-in, called *Grammatik* (originally sold as a standalone grammar checker). But where spellcheckers are straightforward and reliable (all they have to do is compare what you've typed with a pre-programmed word list, after all), grammar checkers are much more hit-and-miss. The first few times you use *Grammatik*, you'll probably be impressed by how clever it is, but you'll soon be annoyed by its quirks. For instance, unless you tell it not to, it will interrupt you every time you type "there" to remind you that you *might* want "their" instead. Set it to monitor your style and it keeps telling you that abbreviating "do not" to "don't" is too informal, or that you've used the passive voice. (as in "the passive voice has been used by me" rather than "I have used the passive voice").

Table generators are another heavily used tool. These create a grid in which you can enter text and numbers in a formal layout. Although it's hardly a fully fledged spreadsheet, it enables you to perform many useful mathematical tasks, such as totalling columns and rows. What is impressive here is the ease of creation and use. The table tool in *Nisus Writer*, for instance, is so bloated and over-specified that it demands a manual all to itself!

However, *WordPerfect's* Graphics module is somewhat more clumsy. When you select it, a new window opens, presenting you with the usual drawing tools – circles, lines, rectangles and Bezier curves. When you close the Graphics window, the object you've drawn is inserted wherever the cursor was, as a large text object. It turns into a free-floating graphic as soon as you drag it with the mouse, and text then wraps around it.

Because graphic objects behave like this, you can't draw, say, a rectangle around a title. To do that, you need to invoke the Overlay tool. This is very similar to the Graphics tool, but leaves the text in the window so you can draw directly over it. However, once you get back in the normal text editor you can't move the object by merely dragging it – you have to re-enter the Overlay tool.



There are ten tool bars, but you'll probably find you can get by with three or four.

Dividing graphics into two different modules is completely unnecessary – *ClarisWorks* has a much better system.

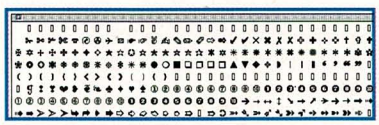
What you won't find in *ClarisWorks*, though, is lists. These enable you to create a table of contents or index automatically. You start by telling *WordPerfect* where to generate the list, then – in the case of an index – mark each word you want included. Finally, you click a button to generate the index. If the words get moved around later on, it's a simple job to re-generate the index – and it's a similar story for creating a table of contents, with the finished product looking good enough to use with little or no alteration.

You can also create cross references – those bits of text that say "see page 10". Again, these will change automatically should you move the text which has been marked and referenced.

In all these respects – as in all the standard word processing functions, from text styling to paragraph formatting – *WordPerfect* is exemplary. The problem is, *WordPerfect*, *Nisus Writer* and *Microsoft Word* are all evenly matched for features, with none having a major advantage over the others. And anyway, if the programmers do incorporate a clever new feature, you can be sure the others will follow suit in their next incarnation.

But it's in the area of ease of use that we see some daylight between them. The modern trend, especially in Microsoft software, is to have button bars all over the place to provide short-cuts. Granted, you can turn them off, but what is the point of buttons that perform basic tasks such as copying and pasting? Surely keyboard short-cuts are faster?

WordPerfect has bars along the top, side and bottom of your screen. The button bar down the side has buttons for more advanced features such as indenting and headers. You can work out what the



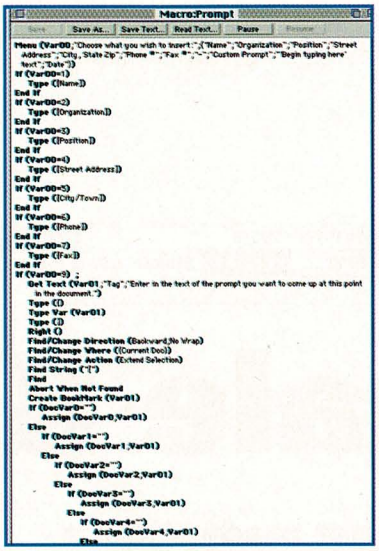
A built-in symbols function makes it easy to find foreign characters or use fonts such as Zapf Dingbats.

buttons do because the bar along the bottom constantly tells you what the mouse pointer is above (it can also tell you the time, line number, page number and so on). You can choose to view any or all of ten button bars across the top of the screen, but you'll need a big monitor to display the whole lot! Again, these contain really useful features for such things as adding formulae to a table.

User-friendliness is of course a matter of personal taste, but I preferred these tool bars to *Word's* equivalents. The layout is more intuitive and the tools more useful. You still need to use pull-down menus for some tools, but again *WordPerfect* scores highly, with tools where you'd expect them to be. With Microsoft software, you spend many frustrating minutes trying to perform tasks such as changing the paper size and struggling because the controls aren't where you'd expect them to be in a Mac program. The *WordPerfect* manual will help you with these tasks, too, being comprehensive (500 pages) but still readable.

So do all these features mean you need a mega Mac to run *WordPerfect?* Not at all. And though it officially requires 4Mb of RAM, you can get away with as little as 1.2Mb free RAM. Yes, it runs more slowly, but it's entirely acceptable.

So which word processor should you buy? Well, *ClarisWorks* will satisfy the needs of most users – it's cheaper than *WordPerfect*, and you get a very usable spreadsheet, database, and graphics package too. *Nisus Writer 4.0* is a good



Using macros can be as simple as recording your moves or as complex as writing scripts like the one shown here.

workhorse, but it's very clumsy compared to *WordPerfect.* It does have one very important trick, though – you can open a native *Nisus* file in *SimpleText*, edit and save it, then open it in *Nisus* again. By comparison, *MS Word* files are a nightmare to open in anything except *Word* – and the same version that created them, at that.

Ironically, that may be the strongest reason for buying *Word* after all – it is everywhere, and to be sure of opening *Word* files you need *Word*. It is a fat monstrosity which feels sluggish on less powerful Macs; tools aren't where you expect or want them to be, and Microsoft seems to have gone out of its way to make it not look like a Mac program; but if you want to be able to swap files with a minimum of fuss, you have to buy it.

All that apart, though, *WordPerfect* is my personal favourite. It can more than stand its ground in a straight feature-for-feature shoot-out, but it blows its rivals away in terms of usability. The interface is friendlier and more Mac-like overall than any of the others' and, if look-and-feel matter to you, you'll find *WordPerfect* comes up with the goods time after time.

Microsoft now bundles *Office* with mid-range Macs (7600 and 8500s). Corel hasn't (yet?) signed up similar deals, but *WordPerfect* does come with an excellent clip art bundle, and a quality package like this is worth paying for. Give it a home and you'll come to love it. **MF**

Corel WordPerfect 3.51

A fully featured word processor that's every bit as powerful as any of its rivals, but (except for the graphics module) as friendly as a fluffy pair of slippers and a warm fire.

Features	**90%**
Ease of Use	**90%**
Documentation	**85%**
Value for money	**81%**

MF rating 88%

Not only but also

Corel has bundled a lot of clip-art with *WordPerfect*, and because it's probably most famous for its clip-art, the 5,400 images are generally very good, the majority being in colour. You also get 200 photos, nearly as many textures and a copy of *Master-Juggler Pro 2.* Originally sold as a separate product, this program gives you better control over fonts, Function keys and applications – you can even put your fonts wherever you like.

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Extras: MIDI interface and MIDI instrument to play the score (not essential)							

Nightingale 3.0

Lightning fast, intuitive and Internet-ready – just a few of the many claims made by this new Desktop music publishing program. Ian Waugh picks up his baton and takes a look at how it performs...

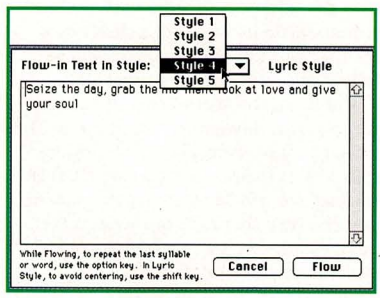
There are dozens of music programs now available for the Mac, but very few are actually dedicated score-writers. Many have notation facilities and are, indeed, capable of producing good-looking scores. However, if your main purpose is to print scores with all the nuances that they entail, your best option may be to use dedicated score-writing software such as *Nightingale*.

This nifty application supports scores containing up to 64 staves and a total of 100 voices. You undertake your initial setting up in the Master Page. Here you choose the number of staves and their names, the MIDI patches and channels, the upper and lower note limits, transposing settings of the instruments, the page margins and so on.

You can enter notes in several ways, though clicking them in with the mouse is very easy. You don't have to hit the exact line or space when you do this: simply click and hold and then move the mouse up or down to select your required position. *Nightingale* automatically spaces notes out correctly as you enter them, and vertical sync lines appear across the staves so you can easily see which notes line up with each other. Each time you insert a symbol, the width of the bar also adjusts to ensure proper spacing. If you make a mistake, select the Arrow cursor, click on the note or symbol and press **[delete].** Easy.

To beam notes, you select them first. If you want, you can beam all selected notes together (even across bar lines) or beam them automatically by beat.

You select notes and symbols from the Tools palette and all the tools can also be selected by pressing hot keys on your Mac keyboard – this is quicker than using the mouse once you learn the key-strokes. One neat feature which we haven't seen in any other Mac program is "mouse shaking". By shaking the mouse from left to right (while keeping the base on the mouse mat), you can switch between the current music symbol and the selection arrow. If your wrist's not up to it, you can switch between the two using **[enter]** instead.


Style 1
Style 2
Style 3
Style 4
Style 5
Flow-in Text in Style:
Lyric Style
Seize the day, grab the
your soul
While Flowing, to repeat the last syllable or word, use the option key. In Lyric Style, to avoid centering, use the shift key.
Cancel
Flow

The Flow function automatically places any lyrics you enter in the Lyrics editor under the correct notes on the stave.

Real-time entry

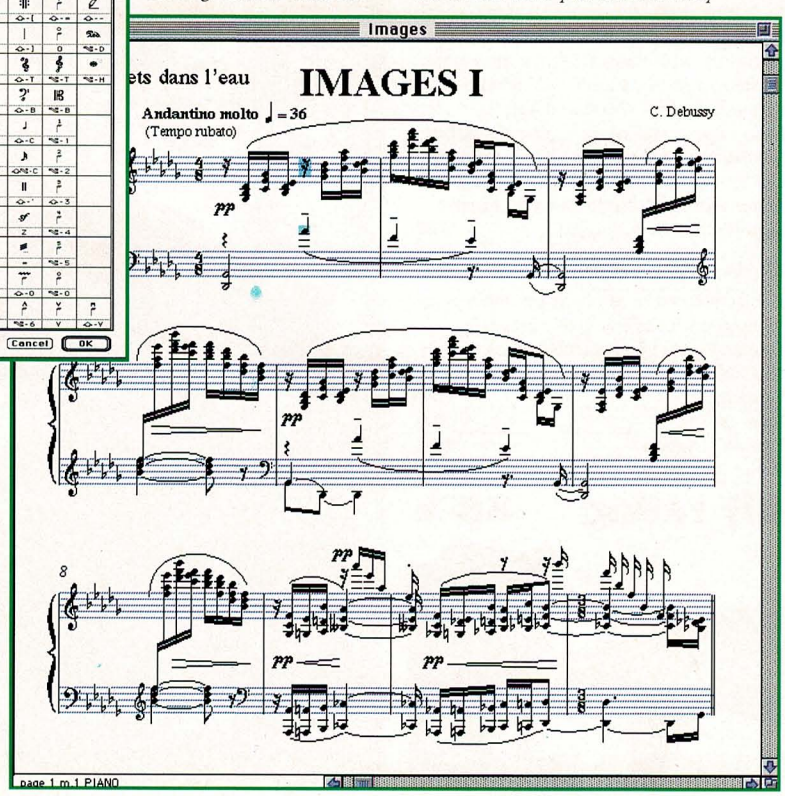
You can also enter notes in real-time from a MIDI keyboard. The program looks at notes played within a certain number of milliseconds of each other and makes sures that they form a chord – this is useful. The system is fine for simple music lines, but if your playing isn't up to scratch, or you're trying to enter complex parts, you may have a little tidying up to do when you've finished.

Alternatively, you could record in Step Time. To do this, you select a note duration and then play the keyboard. The notes will then appear in a window, but not directly in position on the stave as you might expect. It's not ideal but it's easy to do and you can soon learn to enter complex scores quite quickly.

Nightingale has a full range of edit facilities. You can adjust the pitches of notes already entered and also Cut, Copy and Paste sections of the score. You can create tuplets of virtually any number of notes and add a range of music symbols from the well specified Tools palette. These include chord slashes, special note heads and a wide range of ornaments such as tremolo, mordent, trill, arpeggio, bow marks, accents, dynamic markings and so on. There's support for chord symbols too, and the Lyrics mode automatically spaces words under the notes.

Additionally, the Slur tool draws neat slur and tie curves across notes, and tied notes also play correctly. Curves are placed automatically when you select the notes you want to encompass, but you

***Nightingale* is highly customisable – you can even choose which hot keys to use when selecting notes and musical symbols.**



***Nightingale* can produce good-looking scores using an excellent range of music symbols which will more than satisfy most needs.**

can change their shape and position if you wish. In fact, most of the default settings and placements in *Nightingale* can be altered without difficulty.

Really, most of *Nightingale's* default settings are okay, but the pack includes a utility program which enables you to customise the package to the utmost degree. Not only can you choose your own hot keys for the tools, but you can also change their positions in the palette. You can modify the instruments in Master Pages, fix the maximum number of open files, set the page margins, adjust the default space between systems, and even change the length of the note stems. There are dozens of options here and it's unlikely that you'll find a setting you don't like which you can't change.

One of *Nightingale's* special features is the way it enables you to scan in a score from printed music. This is unfortunately an optional feature and you have to contact the supplier to get an access code to activate it. This will cost you an extra £130 or so, and really ought to be included in the price of the package.

Using the scanning function is a three-stage process. First you scan the music, then you convert it to a *NoteScan* file and then you read it into *Nightingale*. The process reads notes, accidental bar lines and key signatures, but it can't handle musical instructions, slurs, and so on. It's happiest with clear, well-spaced scores which are not too complex, but it can still get these wrong by skipping notes. It's a neat feature but the recognition routines require a little more work. If you think it will turn the *1812 Overture* into a MIDI file you'll be disappointed. However, it could save time entering a score from printed music, providing you're prepared to check the results carefully for errors and omissions.

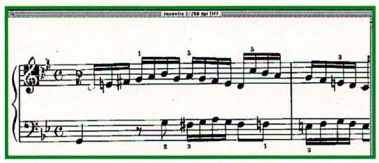
Note with a view

Another of *Nightingale's* special features is *NoteView*. This is a view and play-only version of *Nightingale* and is free if you're an individual user. You can use it to send copies of your score to associates, although you should note (sorry) that it has no printout option. The on-line Help suggests that its main use is for viewing scores on the Web, and it includes instructions for configuring both *Netscape* and *Mosaic* browsers. *NoteView* can be downloaded from Musicware's Web site.

Nightingale can also import standard MIDI files and is compatible with *Finale's* ETF (Enigma Transportable File) format.

Although scorewriting is its main purpose, *Nightingale* can also play scores via MIDI. It has its own built-in MIDI driver but also works with Apple's *MIDI Manager* or Opcode's OMS (Open Music System), which is the preferred alternative. In the Master Page you can select the instruments and MIDI channels you want each stave to play back on. There are no transport controls as you'd find on a normal sequencer, although you can pause playback and play a selected section of the music. You can also switch on a "page turning" function so the section played is always in view, but *Nightingale's* priority is to display the score rather than maintain timing during playback and it does pause during screen updates.

The manual contains a tutorial and it doesn't take long to get up and running. There is a reference guide for all the menus but no index. There is on-line Help and also a more extensive manual on disk which you can print out. For the asking price, however, you're justified in expecting a fully-printed copy.

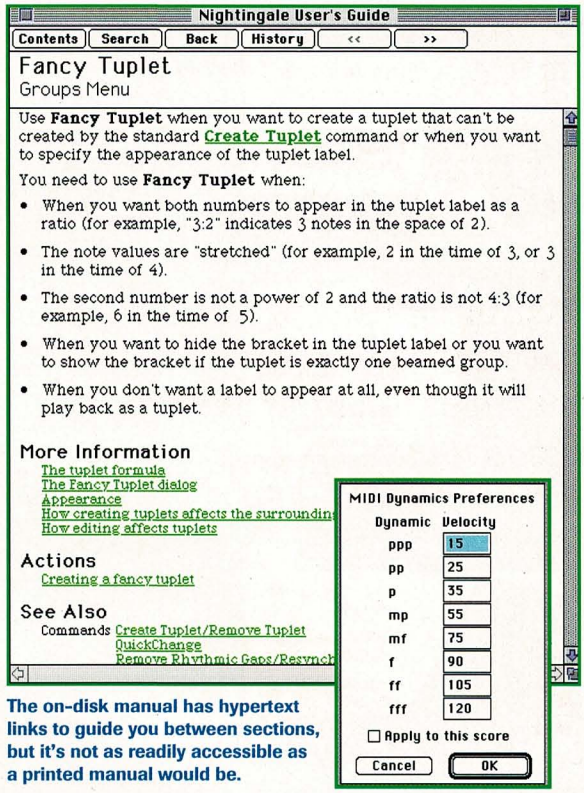
Nightingale is not a substitute for a sequencer and if you want to do a bit of sequencing and a bit of scorewriting too, you should be looking at a sequencer with scorewriting facilities (such as *Cubase Score* or *Logic*). However, as a scorewriter it does its job very well and though a few aspects of its operation are not as immediately obvious as you might wish, it is not a difficult program to learn. It has more than enough music symbols to satisfy your needs, it's fast and flexible, highly customisable and although it has a range of automatic layout functions, it won't impose its will on yours. Above all, it produces very attractive scores. **MF**

***NoteScan* converts a scanned TIFF file into a format that *Nightingale* can both read and then display as a working score.**

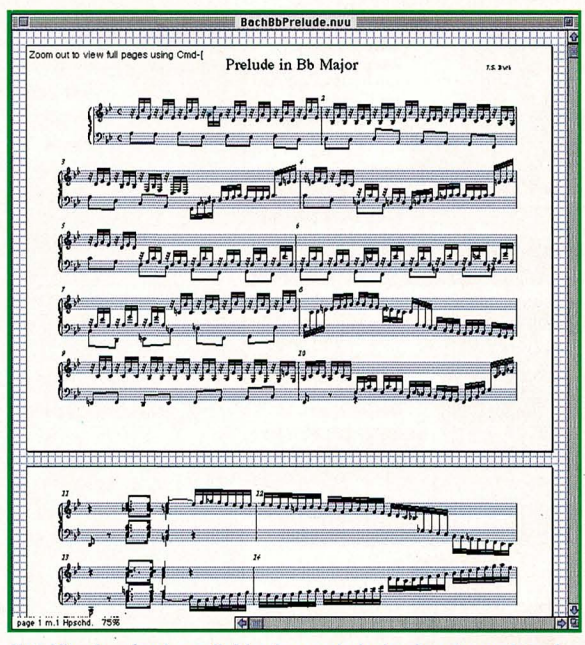
Nightingale 3.0

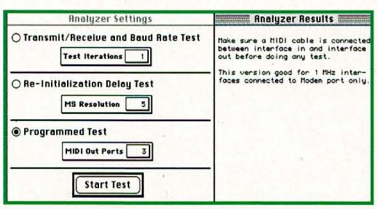
Easy enough to learn and to use, speedy and flexible, and capable of producing impeccable scores.

Features	**88%**
Ease of use	**80%**
Documentation	**76%**
Value for money	**74%**

MF rating 79%


Nightingale User's Guide
Contents
Search
Back
History
Fancy Tuplet
Groups Menu
Use Fancy Tuplet when you want to create a tuplet that can't be created by the standard Create Tuplet command or when you want to specify the appearance of the tuplet label.
You need to use Fancy Tuplet when:
When you want both numbers to appear in the tuplet label as a ratio (for example, "3:2" indicates 3 notes in the space of 2).
The note values are "stretched" (for example, 2 in the time of 3, or 3 in the time of 4).
The second number is not a power of 2 and the ratio is not 4:3 (for example, 6 in the time of 5).
When you want to hide the bracket in the tuplet label or you want to show the bracket if the tuplet is exactly one beamed group.
When you don't want a label to appear at all, even though it will play back as a tuplet.
More Information
The tuplet formula
The Fancy Tuplet dialog
Appearance
How creating tuplets affects the surrounding
How editing affects tuplets
Actions
Creating a fancy tuplet
See Also
Commands Create Tuplet/Remove Tuplet
QuickChange
Remove Rhythmic Gaps/Resync
MIDI Dynamics Preferences
Dynamic Velocity
ppp 15
pp 25
p 35
mp 55
mf 75
f 90
ff 105
fff 120
Apply to this score
Cancel
OK

The on-disk manual has hypertext links to guide you between sections, but it's not as readily accessible as a printed manual would be.

***NoteView* is a freely available view and playback-only version of *Nightingale*, enabling other people to see your scores.**


Analyzer Settings
Transmit/Receive and Baud Rate Test
Test Iterations 1
Re-Initialization Delay Test
MS Resolution 5
Programmed Test
MIDI Out Ports 3
Start Test
Analyzer Results
Make sure a MIDI cable is connected between interface in and interface out before doing any test.
This version good for 1 MHz interfaces connected to Modem port only.

The *Analyzer*, bundled as part of *Nightingale*, checks all attached MIDI interfaces for correct operation.

Jargon busters

Finale: one of the longest-established music notation programs and one used by many music publishers but it has a long learning curve and can be slow. Once you've learned it, though, there's not much you can't do with it.

Part: one or more staves assigned to an instrument. A trumpet would use one stave but a piano would have two staves.

Stave or staff: the five horizontal lines on which musical notes are written.

System: a complete set of all the staves in a score, running from the left edge of the page to the right. If the music continues onto another set of staves, this is another System.

Tuplet: a group of notes which play in the same time as a certain division of the beat. The most common tuplets are triplets, which play in the time of two notes. However, you can create a tuplet containing any number of notes to play in any specified time division.

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64Mb 168-pin DIMM	£	199
8Mb 168-pin DIMM EDO 3.3v PM 4400/Starmax	£	39
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16Mb Powerbook 1400 Series	£	119
24Mb Powerbook 1400 Series	£	130
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512K VRAM Module	£	16
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2Mb VRAM DIMM EDO (4400/StarMax)	£	69
Maths Co-Processor for older Macs	£	25
25MHz 68040 Co-Pro for C610/LC475	£	110
33MHz 68040 Co-Pro for Mac 630	£	149

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2Gb external hard drive	New LOW Price	£	274
4Gb Internal hard drive	New LOW Price	£	549
9Gb external hard drive	New LOW Price	£	1275
Iomega 100Mb Zip Drive with 1 cart, cables & s/w		£	119
Syquest EZFlyer 230 Drive with 1 cart, cables & s/w		£	199
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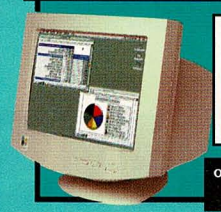

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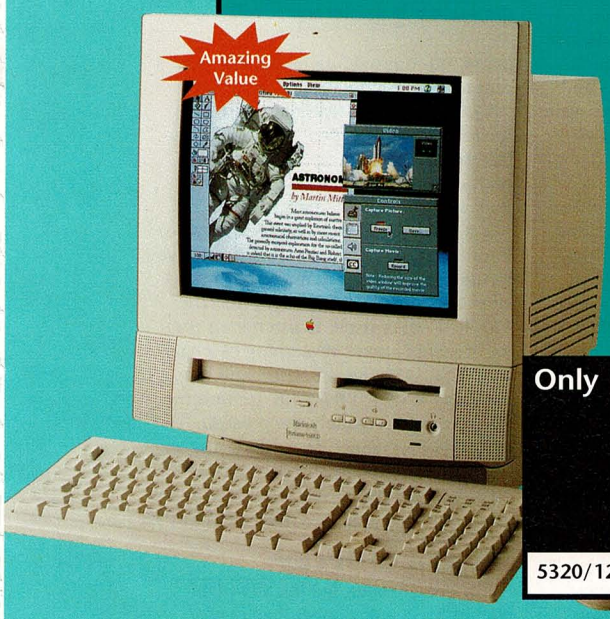

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PRICE	£39.99	**ON SALE**	Now	**CONTACT**	BMG Interactive on 0171 384 7500	**WEB SITE**	Not available
MAC	**Processor:** 68040 • **RAM:** 5Mb	**POWERMAC**	**Processor:** any • **RAM:** 5.2Mb	**REQUIRES**	**System:** 7.0 • **HD space:** 5Mb • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** double-speed CD-ROM drive		

Musée d'Orsay

This new release takes you on a virtual visit to the world of 19th century French art. This famous Parisian gallery swings open its doors, enabling you to explore and history to flow...

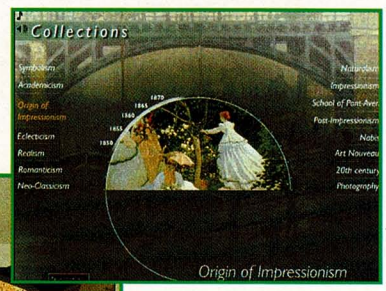
ON THE CD

Rolling preview in the Demos folder

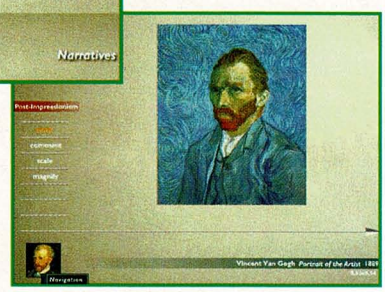
Even without its art, the Musée d'Orsay in Paris is a masterpiece. Converted from a railway station in 1986, this perfect example of design engineering is defined by its scale, its imposing arch iron girders, its endless ceiling and its life-affirming giant-sized clock. There could be no finer home for the glories of French Impressionism – and this is the first CD-ROM to walk through the doors of the museum.

Spanning the period from 1848 to 1914, the gallery houses a multitude of seminal art – including painting, sculpture, objets d'art, photography and film. There are 15 collections included, which stretch from realism and romanticism right through to Renoir – and many of the names need no introduction. Legends like Cézanne, Van Gogh and Monet share space with the likes of Gustav Klimt and the inspirational Josef Hoffman. Despite the vast array of talent, however, the best place to start is the "Tour", which enables you to assess exactly what's on offer.

The central aisle of the *Musée d'Orsay* shows the museum in all its splendour. Just click the mouse and you set off through its walled majesty.



The 15 collections range from Impressionism to photography, providing an eclectic taste of an ever-shifting and dynamic era.

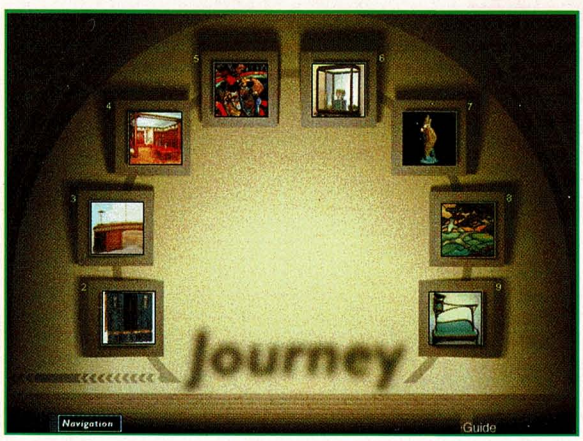


The Work screen is comprehensive, presenting all the information concerning one work, the room number where it can be found, the collection to which it belongs, the name of the artist and so on.

Hector Guimard's spectacular "Smoking Room Bench" (1897) blends "long, plant-like lines" with an art-nouveau aesthetic.

The inclusion of QuickTime VR means you can stroll through the museum at your leisure, entering all the rooms and examining many works in detail. As well as magnifying and scaling tools, many of the exhibits have commentaries and short video previews that provide background detail and give historical and cultural context – the inspiration behind the brushstrokes. Also, to avoid getting lost, a feature called "Journey" enables you to see all the works you have visited (and the navigation is far from perfect, so this feature is very much needed). You can even create your own scrapbook by dragging your favourite pieces into the "Album" facility.

Viewed as a walkabout, *Musée d'Orsay* affords you a welcome freedom of movement. Skip from section to section, however, and everything is a little messy and too shallow. For instance, the "Chronology" feature is controlled by the big hand of a clock, and while at first you think it's a nice idea, it's actually quite fiddly and frustrating. What's more, the "Guided Tour" jumps from genre to genre, often providing little more than a sentence on each painting. And the "dissection" tools, essentially just a microscope, are inadequate and lacking information. Even the 15 collections, each containing 10 to 20 works, offer only a few words on each exhibit.



The "Journey" feature tracks your most recent movements and stops you getting lost in the sculpture section.

It's clear that depth has been sacrificed in order to make way for the impressive virtual walkabout – but although this gives an unmatchable insight into the Musée d'Orsay itself, it also means the art inevitably takes something of a back seat. That said, the collection and the museum in which it stands are unique documents of arguably the greatest period in French art. More than just an impression, *Musée d'Orsay* practically gives you the front door keys and invites you to look around. **GIL GILLESPIE**

Musée d'Orsay

Full of great images, but this CD-ROM plumps for quantity rather than quality.

MF rating 66%

PRICE	£39.99	**ON SALE**	Now	**CONTACT**	Macmillan on 0171 881 8000	**WEB SITE**	http://www.mip.macmillan.co.uk/
MAC	**Processor:** 68030 • **RAM:** 5Mb	**POWERMAC**	**Processor:** any • **RAM:** 5Mb	**REQUIRES**	**System:** 7.0 • **HD space:** 8Mb • **Screen:** 640 x 480 • **Colours:** 256		
Extras: double-speed CD-ROM drive							

Scrutiny in the Great Round

Progeny, conception and pregnancy are just some of the themes investigated in a CD-ROM that works defiantly "in the gaps of life". Certainly original – but is it just art for art's sake?

The lines between painting and sculpture are blurred, but the images often lack visual clarity and purpose.

Multimedia CD-ROMs can be many things – educator and entertainer, interactive organiser, coffee mug mat and much more besides. But are these post-modern frisbees capable of new forms of expression? Are they actually capable of being art? As the genre expands in all directions this is a question that is bound to be asked with increasing frequency. But for the moment, art-house multimedia is a rare beast and one that lives in the deep underground.

Scrutiny in the Great Round is just such a disc. Based on a book by Tennessee Rice Dixon, this is an interactive collage of free-form imagery, sounds and words, the intention of which is to explore the circular essence of life, sexuality and the depths of the unconscious mind.

From the outset you realise that this is to be a journey without maps. The interface shows a sun, a moon, lots of little dots and a naked woman staring point-blank into an antique mirror. In the background a new-age ambient soundtrack ebbs and flows. Click on any of the icons and you enter an organic canvas of floating fish, morphing figures, chubby renaissance nudes, horses' heads, ocean noises and scratchy, near-indecipherable sketches. Bizarre.

Each scene has two main levels and numerous animated layers – but the style is so similar throughout, it's difficult to distinguish one theme from another. As if this weren't enough, there's even some poetry from the Eric Cantona school of verse: "I am a ship," the narrator deadpans; "this voyage cannot end with me." Yeah, right.

And this is how it continues throughout. You never know where you are, what you're doing there or what you're supposed to be looking for – and while some of the images are visually and aurally unsettling, they suffer from a nagging, overbearing mysticism that, in the end, renders them unconvincing.

Far from being truly modern art, *Scrutiny in the Great Round* is all moons, nature-spirits and life-cycles – and its attempt at drawing back the veil on human sexuality is rooted in the wide open spaces of the late 1960s. Not original *or* particularly inspiring. And if the art isn't any good, which it isn't, then what are you left with? Well, very little really. You wander round for hours getting variations on this fluid surrealist theme, your ears prick up as the ambient music shifts an inch or two on its axis, and you even begin to see the work of notorious fine artist Damian Hirst in a whole new light.

While there's no doubt the conception and the design of *Scrutiny in the Great Round* are innovative and imaginative, it has an unfortunate tendency to drift aimlessly in the direction of nothing in particular. A case of applying the art first and the meaning later. **GIL GILLESPIE**

Scrutiny in the Great Round

A mystical journey into... well, nothing really. Post-modernists will love it though.

MF rating 48%

The menu (once you've found it) is neatly laid out, but no less confusing.

The section called "Who, How, Why?" introduces the artists and their intentions. It is advisable to visit here first.

You can change the screen from "day" to "night" by clicking in various places. Click on the pictures and they morph into other things. *Scrutiny* is very, *very* fluid.

Yes, it looks like a nest, but what it actually means is anyone's guess.

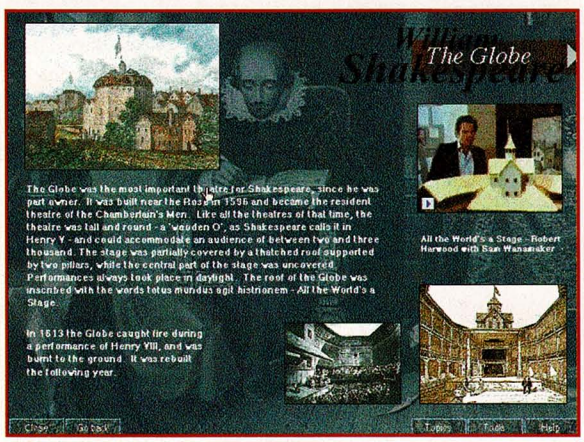
PRICE £49 each	**ON SALE** Now	**CONTACT** HarperCollins on 0181 741 7070	**WEB SITE** http://www.harpercollins.com/
MAC **Processor:** 68040 • **RAM:** 5Mb	**POWERMAC** **Processor:** any • **RAM:** 5Mb	**REQUIRES** **System:** 7.0 • **HD space:** 17Mb • **Screen:** 640 x 480 • **Colours:** 256	
Extras: 2x speed CD-ROM drive			

Macbeth, Romeo & Juliet, Midsummer Night's Dream

You either love him or hate him – but you can't escape him. He is to the English language what McDonalds is to burgers. Tess Moran knows she's in the '90s, because Shakespeare is on CD-ROM.

So, you've had a copy of *Macbeth* sitting on your bookshelf gathering dust since you were at school. The one you didn't read. The one that sits next to the *York Notes* you read instead. The upward struggle you remember from school has now become a cushioned free-fall into the world of Shakespeare, his language, his contemporaries, his London and the nature of Elizabethan drama. Furthermore, it comes in easily digestible doses of image, sound and video.

Macbeth, A Midsummer Night's Dream and *Romeo & Juliet* are the first three discs in a new Shakespeare series from Attica Cybernetics, HarperCollins Publishers and BBC Education. All three follow the same basic structure and layout, with the opening screen introducing you to the main subject areas of the play, cleverly arranged in six hexagon segments. This layout is designed to mimic the visual landscape of the famous Globe Theatre, where most of Shakespeare's plays were performed in Elizabethan times.


William Shakespeare
The Globe
The Globe was the most important theatre for Shakespeare, since he was part owner. It was built near the Rose in 1596 and became the resident theatre of the Chamberlain's Men. Like all the theatres of that time, the theatre was tall and round - a 'wooden O', as Shakespeare calls it in Henry V - and could accommodate an audience of between two and three thousand. The stage was partially covered by a thatched roof supported by two pillars, while the central part of the stage was uncovered. Performances always took place in daylight. The roof of the Globe was inscribed with the words totus mundus agit histrionem - All the World's a Stage.
In 1613 the Globe caught fire during a performance of Henry VIII, and was burnt to the ground. It was rebuilt the following year.
All the World's a Stage - Robert Harwood with Sam Wanamaker
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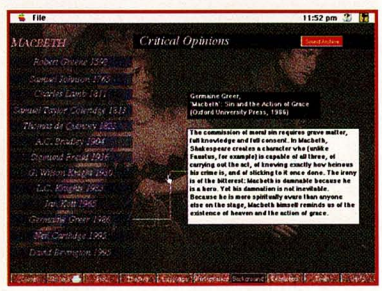
All you wanted to know about Shakespeare but were to afraid to ask... up for grabs on these CD-ROMs.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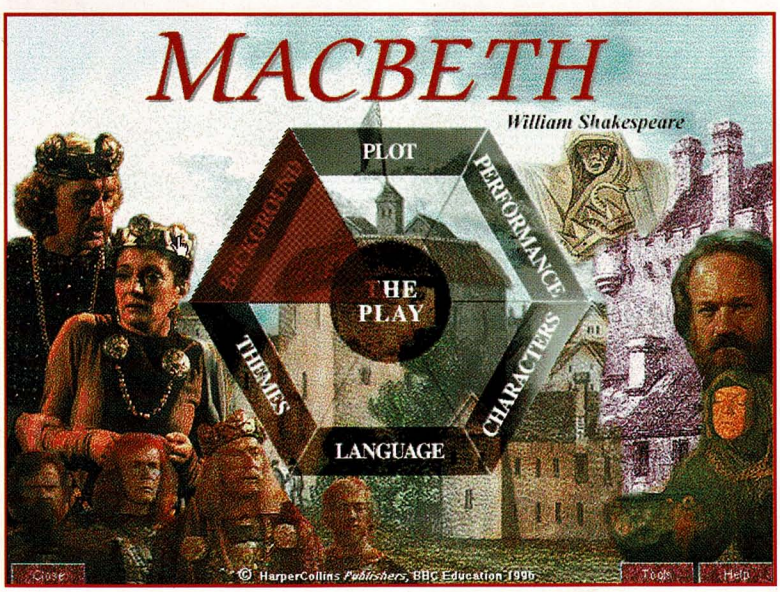
MACBETH
Critical Opinions
Germaine Greer,
Macbeth: Sin and the Action of Grace
(Oxford University Press, 1986)
The commission of moral sin requires grave matter, full knowledge and full consent. In Macbeth, Shakespeare creates a character who (unlike Faustus, for example) is capable of all three, of carrying out the act, of knowing exactly how heinous his crime is, and of sticking to it once done. The irony is of the bitterest: Macbeth is damnable because he is a hero. Yet his damnation is not inevitable. Because he is more spiritually aware than anyone else on the stage, Macbeth himself reminds us of the existence of heaven and the action of grace.

Check out what the brainy people have to say about these three plays.



Today we are going through the hexagonal window. Your Elizabethan journey starts here...

Each slice of the hexagon relates to a segment of the CD, with *Background*, *Language*, *Plot*, *Themes*, *Performance* and *Characters* neatly arranged around the central *Play*. All six segments help to place the focus of the CD-ROM, the play itself, within its cultural, historical and factual context.

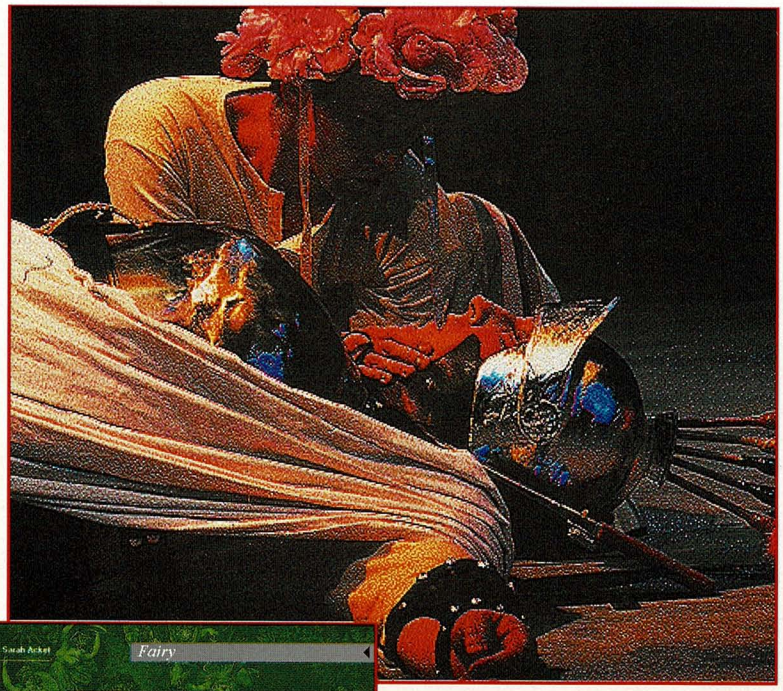
A good place to kick off is the *Background* segment, which you can access via the hexagon menu (it's also accessible from within the play itself, via icons which run across the bottom of the screen). *Background* introduces you to the main sources of the play and provides a detailed synopsis of Shakespeare's life, his impact on the theatre and the nature of his work.

Revision time

It is also a good idea to return to this section after reading and viewing the plays themselves, to absorb some choice critical opinions about Shakespeare and the play in question. The latter come from the likes of Coleridge, Hazlitt and Lamb, and also from modern-day figures such as Marilyn French, Germaine Greer and prominent newspaper journalists. (There's even an extract from the *Guardian*, covering the 1994 story of the schoolteacher who refused to let her pupils see a performance of *Romeo & Juliet* because it was "blatantly heterosexual.")

Plot and *Themes* are good sections to dip into before ploughing straight into the main text of the play. *Plot* gives you a summary of the overall direction of the play, a breakdown and summary of each act and scene, and a timeline. *Themes* introduces some the core ideas running throughout the plays, such as guilt and ambition in *Macbeth* and love and death in *Romeo & Juliet*. Textual descriptions are backed up with a database of relevant references to these themes in the play (for instance, guilt appears in Act One, Scene Three in *Macbeth*). A search engine enables you to find connecting words, and you can build up a selection of usable quotes by Copying text into your Mac's Clipboard for later retrieval.

The remaining three segments, *Performance*, *Character* and *Language*, introduce



Fairy
The fairy, who serves Titania, describes its activities to Puck. [Act 2, scene 1, 2-17], who it then recognises [Act 2, scene 1, 32-42].
Two fairies sing Titania to sleep [Act 2, scene 2, 9-24].

Discover the sleepy characters, midnight mischief and passionate liaisons of *A Midsummer Night's Dream.*

you to many different areas: actors and acting, scenery, costume, music and past adaptations of the plays. They also provide information on each character and their part, influence and impact on the play, with scene references and audio examples.

Language gives you information about variations of language within the plays, such as prose and poetry in *Macbeth* and *Romeo & Juliet* and comedy within *A Midsummer Night's Dream*. Again, there are pointers to examples in the play.

Listen and learn

All six segments are well supported by candid snippets of audio and film from interviews, programmes and performances. Actors, directors and academics give their opinions and experiences of the three plays.

All three CDs begin by assuming you know very little about Shakespeare or the play itself. Good assumption. Rather than being patronising, this enables you to get to grips with the plays more easily. The full text of the play is spoken aloud and pictures of prominent BBC performers are slotted alongside the text with the occasional option to run a QuickTime movie (around 20% of each play is excerpted as video) or access an additional audio file.

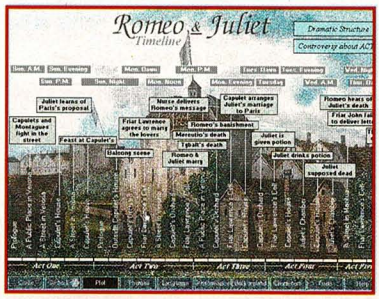
There isn't much these discs leave out. The body of the play is strewn with hyperlinked text designed to give you a deeper understanding of the meaning of words, their place in Elizabethan England and their relationship to the play. The six main segments introduce broader topics such as the nature of Elizabethan drama

The characters in *A Midsummer Night's Dream* discover that the road to eternal bliss has many treacherous bends.

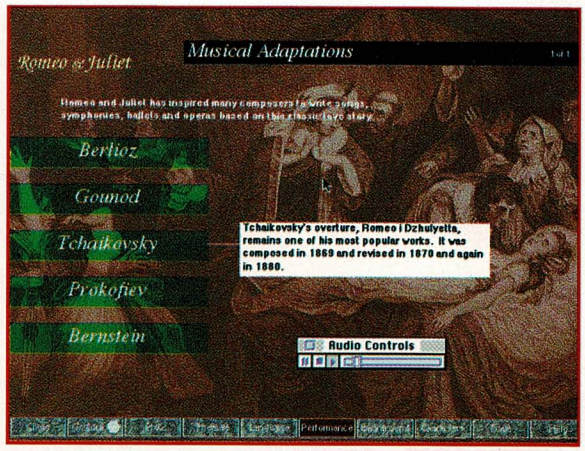
and acting, theatre and entertainment in Shakespeare's day, its evolution through the centuries, and specific topics relevant to that particular play. Music features heavily in *Romeo & Juliet's Performance* segment, which includes audio files of famous musical pieces the play has inspired, like Bernstein's *West Side Story*.

In addition to the six main segments, you can also access two further segments using *Play* itself: *Tools* and *Help*. The former is the definitive resource archive for the CD, enabling you to search for any word, file and topic from the play. There's also a Media Index – a vast catalogue of the images, sound and video footage used within the CD, all of which can be pasted to the Clipboard (which you also find in *Tools*). *Help* supplies on-screen help, along with another search engine that enables you to access all the *Help* topics.

Although these CDs come in two versions, education and consumer (the former has teachers' notes and a copy of the text, but is otherwise exactly the same), there's no denying that they are generally pitched at the student. In this respect they are bang on target, doing for English students what washing machines did for postwar housewives – saving labour. This is essential when you have essay deadlines to meet. With speedy search engines and databases that will find any word, character, theme or line from the play, these CDs are an invaluable Shakespeare companion – but they



Ever wondered what happens in *Romeo & Juliet*, Act One, Scene Two? Now you can find out what you slept through at school.


Romeo & Juliet
Musical Adaptations
Romeo and Juliet has inspired many composers to write songs, symphonies, ballets and operas based on this classic love story.
Berlioz
Gounod
Tchaikovsky
Prokofiev
Bernstein
Tchaikovsky's overture, Romeo i Dzhulyetta, remains one of his most popular works. It was composed in 1869 and revised in 1870 and again in 1880.
Audio Controls

are unlikely to have a broad-sweeping appeal outside education.

To the casual reader of Shakespeare, interest in the plays is likely to wane at the thought of forking out £49 for one of these discs, while a great deal of the contents of these CD-ROMs will already be familiar to enthusiasts. Having said that, these CD-ROMs give you access to pertinent and interesting information that would otherwise have you searching libraries and film archives for the better part of your life. **MF**

Experience some of the best musical pieces ever written.

Macbeth, Romeo & Juliet, Midsummer Night's Dream

Colourful, interactive and educational, these CDs bring literature to life. Excellent.

MF rating 79%

A Midsummer Night's Dream
Costume - after Shakespeare
After the Restoration Shakespeare's plays were acted in contemporary, late 17th-century dress. Neo-classical costume was fashionable. In the mid-18th century David Garrick sometimes used Elizabethan costumes for Shakespeare's plays.
Costumes with 16th-century characteristics were used in the 19th century, although theatrical effectiveness was more important than historical accuracy.
Often draperies of no particular era were used to create a vaguely classical look for the courtiers, and gauzy, floaty costumes were used to suggest how delicate and magical the fairies are.

Check out the 17th century trend-setters in the *Performance* section.

What exactly inspired Shakespeare to write a play about a Scottish serial killer and his Thatcherite wife? Find out here.

PRICE £39.99	**ON SALE** Now	**CONTACT** Penguin on 0171 416 3138	**WEB SITE** http://www.penguin.co.uk/
MAC **Processor:** 68020 • **RAM:** 8Mb	**POWERMAC** **Processor:** any • **RAM:** 8Mb	**REQUIRES** **System:** 7.0 • **HD space:** 14Mb for full installation (1.5Mb otherwise) • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** CD-ROM drive • QuickTime	

The Crucible

Continuing the literary theme, this CD takes you into Arthur Miller's famous play – and behind the scenes. Witch hunts and betrayal figure highly, but it's not all women with broomsticks...

Witches' brew

In 1717, Leicestershire women were tried as witches by being dropped in sacred water. Guilty women were said to swim "like a cork, a piece of paper or an empty barrel".

Pointy hats

For a more lighthearted look at one of the world's oldest arts, check out Terry Pratchett's *Equal Rites, Wyrd Sisters, Witches Abroad* and *Lords and Ladies* – full of pointy hats!

Set against a background of fear and religious fervour, *The Crucible* is American playwright Arthur Miller's most famous work. This complete study guide on CD-ROM not only includes the entire text of the play, but also a teacher's guide and a wealth of source material. The latter leads you through the play, through 17th century Salem and into the modern context in which Miller – who collaborated in the production of this CD-ROM – intended his work to be viewed.

The Crucible was written at the height of the upsurge against communism in '50s America. It's an allegory of the "witch hunt" that went on as communist sympathisers – including Miller himself – were persecuted, and it's also meant as a deeper illustration of human nature, revealing how readily people betray others when their own well-being is on the line.

This CD-ROM from Penguin is separated into eight sections – *The Play, The 17th Century, The Bookstore, The Balcony, Program Notes, The Playwright, Dressing Room* and *The 1950s* – and is uncomplicated to navigate, although the interface lacks inspiration. You start off with a clever introductory navigation screen, which places you in the foyer of a small theatre, but it soon descends into page after page of minimally illustrated text, interspaced with overly long movies and images with poor screen resolution.

Only twice does it threaten to get interesting – first with a promising timeline in *The 17th Century*, and later where pictures of actors from a Young Vic production of the play are used to introduce principal characters in *Dressing Room*. But the latter is particularly disorientating, as it implies that this is the only material contained in *Dressing Room*. In fact, there is a lot more background information available, some of it in the relevant menu and some of it – worryingly – not.

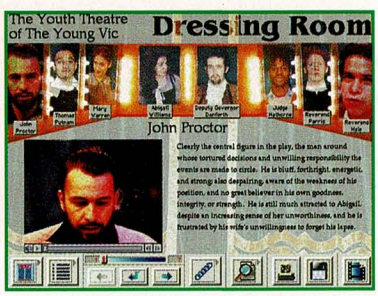
Indeed, this is one of the major failings of *The Crucible* – the lack of a suitably comprehensive indexing system. You're really going to have to look for what you want on this CD-ROM – either that or plough your way through the teacher's notes. Not an inviting prospect!

Sadly the interface failings don't end here. "The Extended Book" – a copy of the full text of the play – is designed to look like the single pages of book. This is a nifty idea, but loses its charm when you realise that to reach the end is going to require nearly 300 clicks on pages that turn far too slowly. It's true that you can access a glossary by clicking on any highlighted text, but for reading the play you start wishing that a real, made-out-of-paper book was included.

These criticisms aside, it's important to remember that this CD is not intended to be entertainment – it's meant as a serious educational tool, designed to run on the most basic Macs still found in a great many schools. It contains a wide range of material, including interviews with the author, actors, critics and academics; cut scenes from rehearsals by the Young Vic; all the way through to pictures of maps and testimonies from the true story of the Salem witch hunt.

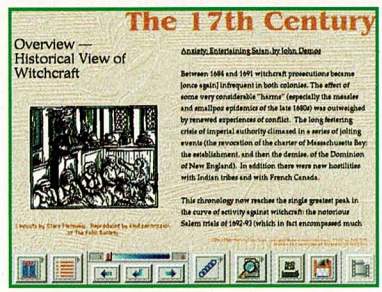
Furthermore, the whole text of the CD-ROM can be printed out, page-by-page; the pictures can be saved to your hard disk for use in your own presentations; there's a handy notebook facility; and there's always further assistance in the form of those hyperlinked glossary notes. These do, however, range very widely in nature, from the dubiously vague to the highly specific, making it hard to work out exactly who this CD is aimed at. Nevertheless, whatever your level of study, you are likely to find something of value in both the historical information and in the exclusive interview with Arthur Miller.

As for magic spells and people with a propensity towards cackling and keeping black cats... Well, just like the traditional incantations of witchcraft, *The Crucible* CD-ROM certainly comes with an entire menu of interesting ingredients. Unfortunately – as any good cook will tell you – the secret of any successful recipe is in the presentation, and that's the special something in which this CD-ROM is rather lacking. **EMMA PARKINSON**



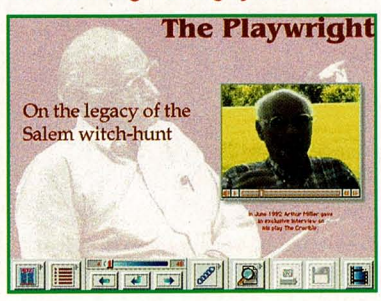
Unlike the other sections, *Dressing Room* has a unique interface, but sadly fails to list all of the information that's contained within.

Start your theatrical tour in the foyer – from here you can reach each part of *The Crucible*.



Individual pages are simple to manoeuvre through, but quickly become tedious.

The interview with Miller may be exclusive, but it's too long and weighty to absorb.



The Crucible

Some fascinating content, but flawed interface and indexing make it daunting to use.

MF rating 68%

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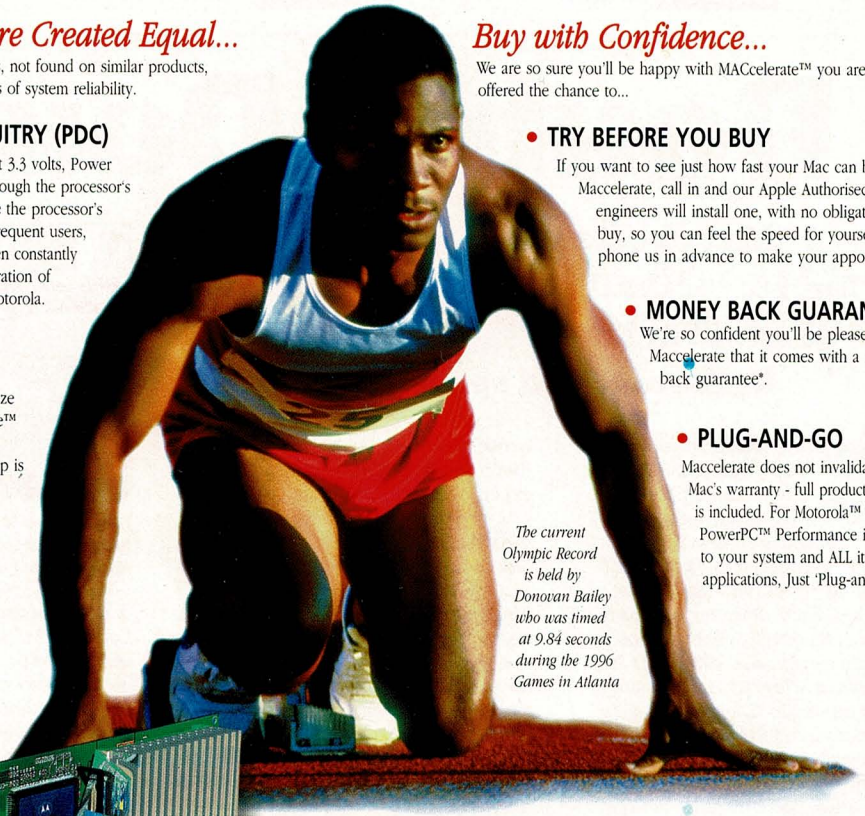

The current Olympic Record is held by Donovan Bailey who was timed at 9.84 seconds during the 1996 Games in Atlanta

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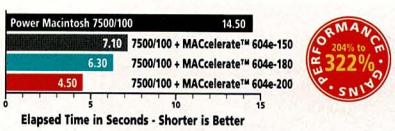
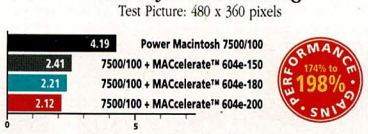
Test Picture: 1181 x 1671 pixels - 24bit



Elapsed Time in Seconds - Shorter is Better

KPT Bryce 2.0 Rendering

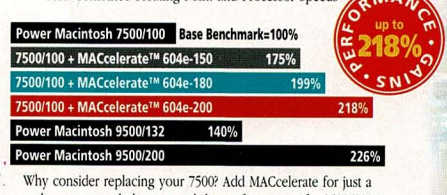
Test Picture: 480 x 360 pixels



Elapsed Time in Seconds - Shorter is Better

MacBench 3.0 Processor Performance Test

Test: Combined Floating Point and Processor Speeds


Power Macintosh 7500/100 Base Benchmark=100%
7500/100 + MACcelerate™ 604e-150 175%
7500/100 + MACcelerate™ 604e-180 199%
7500/100 + MACcelerate™ 604e-200 218%
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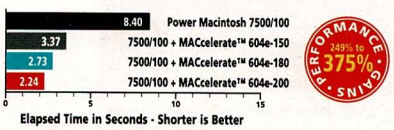

Elapsed Time in Seconds - Shorter is Better

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MAC	**Processor:** 68020 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 •		
Extras: 2x speed CD-ROM drive							

The Double Double

Manchester United, Britain's best known football club, kicks yet another product at its doting fans. It's time to limber up and see how it scores...

Before we begin, a few key words: Manchester United. Merchandising. Money. There – that should put things in context.

The Double Double is the CD-ROM for the Man Utd fan who has everything. Yes, you probably know one. They've got every home and away strip issued since 1991. Plus an ill-fitting pair of Schmeichel goalie gloves, and pyjamas with "Cantona – le Dieu" printed across the shoulders. Said person has also probably got videos commemorating the double of '92-'93, subscribes to *Red Devils* magazine, gives Ryan Giggs cards to their mates at Christmas and keeps a lucky Andy Cole sticker in their wallet. The only thing missing is a collection of matchday programs – because it's rare that he or she actually stands in the cold and sees them play.

Anyway, this disc celebrates Manchester United's second double. They are the only team to have won both the Premier League and the FA Cup twice since the Premiership began five seasons years ago: hence *The Double Double*. But although that is the title of the disc, and you might expect both double-winning seasons ('92-'93 and '95-'96) to be included, only the latter is covered. For accuracy, the disc should have been called "Man Utd: Double Winners '95-'96". Thankfully, however, the season which does appear here is adequately presented.

A good place to begin is the "Countdown to the Double" section. Beginning with the pre-season tour to Malaysia, this disc moves match-by-match through Man Utd's schedule, detailing each victory with match reports, quotes from the press, and video-clips. The line-ups for both Man Utd and their opposition are stated, as well as the scorers and players booked or sent off. Some matches even have action-audio clips provided by 1413am Manchester United Radio!

It's the videos though that are crucial to the presentation, and plenty are provided. You get to see goalkeeper Schmeichel's headed goal against Rotor Volgograd – and when you get to May, you can once again relish Cantona's strike past the Liverpool defence, which ultimately won Man Utd the FA Cup and the double. Most of the videos, however, are blocky, indistinct and lacking in colour.

Elsewhere, you can drop into the "Player Profiles" section. Fiery Irishman Roy Keane, you'll learn, weighs precisely eleven-stone-three, and is 5'10" tall. Such stats are available for each first-team player, along with pictures, video-clips and descriptions of their respective contributions over the season.

"Opposition Profiles", meanwhile, offers previews of the 20 Premier League teams Man Utd are playing this season. Each profile includes a text report and one or two photos. Unfortunately, it's out of date. Gary McAllister is listed as Leeds' star player, though he left the club for Coventry months ago. And controversially, Duncan Ferguson is named the Everton star-man ahead of ex-Red Andrei Kanchelskis. Even more reprehensible is the disc's background music – a bland techno-hum, which grates on the nerves even more than the commentary clichés that accompany the videos.

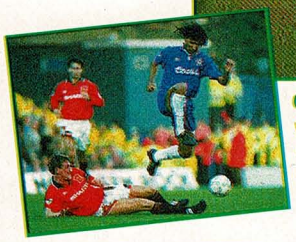
To a Man Utd fan with loadsamoney, this disc might seem worthwhile. Keep in mind, however, that you can see every goal shown here in full screen video on your telly, and all the information can be found in books commemorating the season. To really work, a CD-ROM has to give you more than you can feasibly find elsewhere. Now, a comprehensive history of Manchester United on CD-ROM, with heaps of info and pictures that go way back – that would be worthwhile. This one is here purely for that special "m"-word. Money.

GARRICK WEBSTER

Double disc

The Double Double is actually a double-disc package. The first CD is the multimedia product reviewed here. The second features the terrible top ten single *Move, Move, Move* by the Red Tribe – and the video is included here too.

Like every multimedia CD-ROM worth its bits, *The Double Double* features a quiz section. With each correct answer, you advance the ball towards the goal. There are 1,000 questions in all.

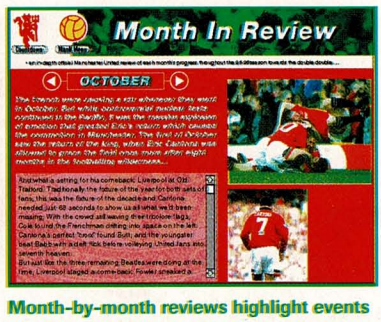


Often you'll feel as if you're watching lots of little red and white matchsticks bumping a white dot around the screen. Subuteo™ looks better than this.

THE DOUBLE DOUBLE
Countdown to Victory
YORK CITY HAND OUT COCA-COLA CUP LESSON
GREAT DANE SHUTS OUT OWLS.
Point gained enough to take Reds to top

Most screens in the "Countdown" section feature this sort of garish tabloid-esque layout. Look, it's Man United 0-York City 3.

Eric Cantona is the most successful imported player in British football. Read all about him in the "Player Profiles" section.



Month-by-month reviews highlight events on the road to the double. The written bits in the disc, though biased, are quite good.

The Double Double

Reasonably good presentation, but there's not much here that you couldn't easily find elsewhere in your Man Utd merchandise.

MF rating 53%

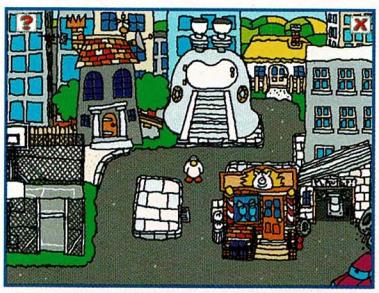
PRICE	£14.99	**ON SALE**	Now	**CONTACT**	BMG Interactive on 0171 384 7500	**WEB SITE**	http://www.duckcity.com/
MAC	**Processor:** 68040 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.0 • **Screen:** 640 x 480 • **Colours:** 256 • 2x speed CD drive		

Duck City

Duck! Where? No, duck! Where...? Thud! Oh, that duck. Enter into a bizarre duck-world, where the creatures do more than swim about and guzzle bread...

Ducks can be a dour, inscrutable species. Even ducks that play basketball, drive off-road vehicles, cut hair, fight armies of slugs, or perhaps breed the slimy gastropods for competitions...

All these activities figure in the six games on this quirky CD-ROM from Alan Snow, the award-winning illustrator behind *PAWS*. That's if "games" isn't too big a word for single-screen activities that last about a minute. But even though they're simple, they're not always easy. Take *ATD (All-Terrain Duck)*, for example. Using the cursor keys you have to drive your duck around an off-road course, avoiding rival competitors and other natural hazards in order to finish the required number of laps within the time limits. Sounds easy enough, but the controls make it spectacularly tough.



This is *Duck City*, and the starting point of all your games. Just walk to the doors and wait (and wait) while the games load.

There are three courses in *ATD*, which makes it just about the most complicated game on the disk. In contrast is *Duck Lab*, where you have to prepare your pet slug's breakfast before sunrise. There are no clues about what to do, which objects to go to and which order to do things in, so it's handy to have a help screen (available for all the games) which tells you. Unfortunately, it tells you so precisely (there are half a dozen steps, that's all) that the only challenge left is carrying out these steps in the time allowed. Easy.

Another time-based game, *Slug Farm*, is actually a lot more fun. You have to fetch cabbages to feed your slug and make it as large as possible in preparation for the slug championship. The sound effects and the alarming increases in the size of your slug with the consumption of each cabbage are quite a laugh, whether or not you win first prize.

Slam Duck is less fun. It's a basketball game where you compete against two apparently helium-filled rabbits. Gaining possession seems to be a question of timing your jumps to collide with them, then waddling off to your basket to try to slam one in yourself. Fat chance.

RoboDuck fares little better. Playing a semi-mechanical cybercop, you have to rid the city streets and sewers of slugs. Actually, since all the action takes place on one screen, it's only one street, and a rather small section of sewer. You suck up slugs with a vacuum cleaner until... well, until you get fed up with it really and try to get the key you see in the sewer. That's when the boss slug sucks you up. We never did find a way round that one.

The last game isn't a game at all, but more of a fun activity. You have a trio of animal friends to practise your hair-dressing skills on, and it is quite a giggle – for a while.

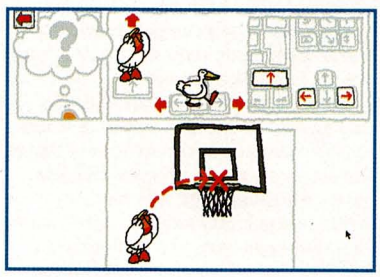
That sums up the whole CD, really. Those games that aren't too frustrating to put up with are genuinely amusing. But this isn't a deeply-involving game-world which will keep you absorbed for months – unlike *PAWS*, which ironically involved you more because you didn't *have* to complete any tasks; your only purpose was to *be* a dog and see things from its lop-sided, charmingly dumb perspective.

Duck City's documentation hints at a couple of extra, hidden games (good luck finding them), while on the CD are six sound samples, a couple of pictures to colour, and instructions on how to draw a cartoon duck or create a duck mobile. There's also a distinctly surreal *RoboDuck* QuickTime movie several minutes long, and some *AfterDark* screensaver modules.

In *Duck Lab* it's just you, three breakfast ingredients, two switches and one hungry slug. Fun for the oddity, not the gameplay.

Is *Duck City* for kids or grown-ups? The simplistic games are more likely to appeal to kids, but they're going to tire quickly of tiny mouse pointers, highly-strung sprite responses and a couple of quite severe time limits. Yet adults with the dexterity and determination to finish a challenge will wonder what happened to the rest of the game when they do so.

PAWS was endlessly inventive and wholly involving. By comparison, *Duck City* is really a lightweight confection for those who are already Alan Snow fans. The games and activities won't keep you coming back for more, but for a bit of fun – at no more than the cost of an impulse-purchase audio CD – *Duck City* is worth a flying visit. **ROD LAWTON**



Ever fancied being a hairdresser? Now you can practise on some of your animal friends.

Not sure what to do in *Slam Duck?* Hit the Help button and you'll see a set of instructions in graphical form.

***ATD (All Terrain Duck*, left) needs split-second reflexes, a cool head and an unstoppable determination to win.**

Duck City

It's quirky and it's diverting, but it isn't *PAWS*. The half-dozen simplistic duck games are too slow to load and shallow to play. Just a bit of a laugh for Duck fans.

MF rating 69%

Dog's life

Duck City's creator Alan Snow was also responsible for the "dog sim" *PAWS*, in which you wandered around and saw the world through the eyes of a cartoon dog. *PAWS* earned a rating of 90% in MACFORMAT 22. Look for it in the adverts in this issue.

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Dinosaur Hunter

With *Jurassic Park 2* due to hit the big screen in the summer, this new release is a timely arrival in the marketplace. Join in the virtual hunt for dinosaur facts and prepare to be amazed...

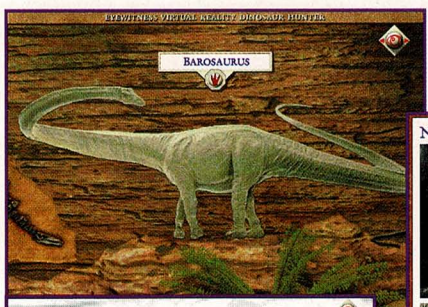
There's an ominous moment in *Jurassic Park* when the Tyrannosaurus approaches the stranded Range Rovers. Ripples are seen erupting across the surface of a cup of water on the dashboard – before anyone gets to see the massive predator, they can feel its thunderous footfalls approach.

What happened next was as earth-shaking for the movie industry as it was for the characters trapped in those Range Rovers. An immensely believable computer-generated T-rex appeared on screen and got very angry indeed. *Jurassic Park* may have been just another monster flick, but effects as special as these made it the unmissable film of 1993. Perhaps, Dorling Kindersley hoped this CD-ROM would send similar tremors through the multimedia industry. And it so nearly does.

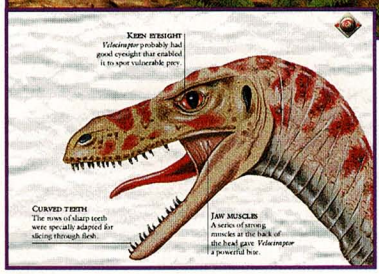
Dinosaur Hunter is like some lumbering overfed Apatosaurus – it suffers from a chronic lack of pace. Rather than racing from screen to screen like a ravenous Velociraptor, it is too slow and unresponsive to feel truly interactive. This is sad, really, because *Dinosaur Hunter* looks splendid and is full of information to help enhance your offspring's knowledge of prehistoric biology. It includes some great dinosaur-related activities (find the missing bones) and all the information contained in the disc is well cross-linked and accessible in numerous ways.

Stacked museum

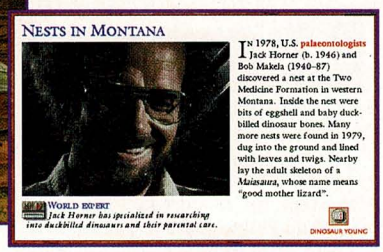
Dinosaur Hunter is the latest in the natural history museum being built by Dorling Kindersley. If you already have *VR Bird* and *VR Cat*, you can add *Dinosaur Hunter* to your collection as the next floor in your museum of life.



Large? Indeed. It was 27 metres long and built like a suspension bridge. Even larger, however, were the Apatosaurus and the Brachyosaurus.


KEEN EYESIGHT
Velociraptor probably had good eyesight that enabled it to spot vulnerable prey.
CURVED TEETH
The rows of sharp teeth were specially adapted for slicing through flesh.
JAW MUSCLES
A series of strong muscles at the back of the head gave Velociraptor a powerful bite.

A scary close-up of that hungry gob.


NESTS IN MONTANA
IN 1978, U.S. palaeontologists Jack Horner (b. 1946) and Bob Makela (1940-87) discovered a nest at the Two Medicine Formation in western Montana. Inside the nest were bits of eggshell and baby duck-billed dinosaur bones. Many more nests were found in 1979, dug into the ground and lined with leaves and twigs. Nearby lay the adult skeleton of a Maiasaura, whose name means "good mother lizard".
WORLD EXPERT
Jack Horner has specialized in researching into duckbilled dinosaurs and their parental care.
DINOSAUR YOUNG

This US expert investigates dinosaur nests, trying to work out whether the mothers looked after their fledglings.

Basically, *Dinosaur Hunter* is a virtual museum. After starting the disc you can, for instance, turn left and go to view exhibits on various species in chronological order. First you'll meet the Herrasaurus and the Coelophesus, which lived in the Triassic period, some 225 million years ago. The latter was 3m long, weighed 60lb, hunted in packs and ate its young.

In the middle of your "timeline tour" you'll meet the Deinonychus, which was the same size as Coelophesus, but lived 113 million years ago. This creature was a predecessor of the Velociraptor and like that hunter, it disembowelled its prey. Finally, your tour concludes with those famous old battlers, Tyrannosaurus rex and Triceratops.

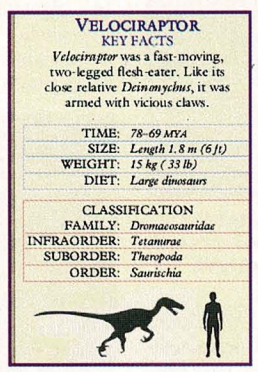
Both these creatures also feature heavily in the "Arena" at the centre of the museum. Here, rendered models of their massive physiques can be examined using x-ray panels. Did you know the bones in a T-rex's skull were hollow, making it lighter, or that Triceratops' broad collar flap was used to regulate its body temperature?

Elsewhere, you'll find exhibits explaining various things about the dinosaurs and their world. There's a guide to sites where bones have been found, as well as information on the excavation and study of these bones. Somewhat disappointing, however, is the fact that dinosaurs are referred to everywhere as reptiles, when recent studies suggest they may have been more closely related to birds.

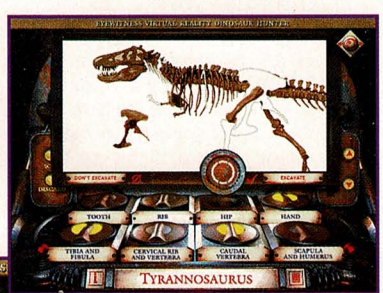
Also, there isn't a great deal on one of the most contentious dino-issues: their extinction. All the usual possible causes are briefly discussed, but in no depth. Was it mammals eating their eggs, poison in the plants, volcanoes or a giant meteor hitting Mexico 65 million years ago?

Like *Jurassic Park*, *Dinosaur Hunter* benefits from a subject matter that your children find intrinsically fascinating. Its slowness, however, means it will never be as earth-moving as the famous film. The great strength of *Dinosaur Hunter* is its wealth of species-specific information. There's lots to look at and plenty to do. It's just a shame that moving around and doing anything takes so long.

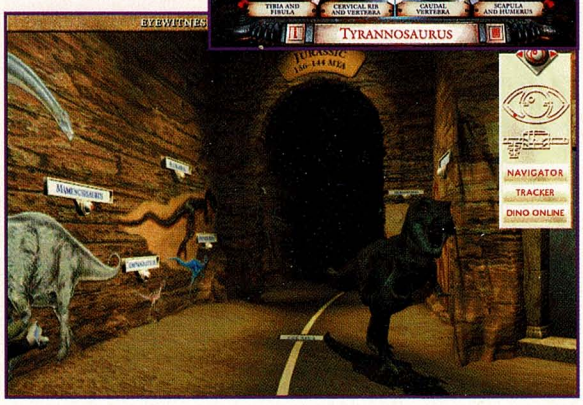
GARRICK WEBSTER



Key facts about when Velociraptor lived, what it ate and how big it was.



Using tools, you can even put missing bones in place on the fragmented skeleton. Here we replace T-rex's hip bone. Things are coming together nicely.



Now there's a bit of a surprise. With the magic of multimedia, the T-rex comes to life and starts roaming the virtual museum.

Dinosaur Hunter

Contains a broad range of info, but it's too slow to feel fun. Still, it's worth the money.

MF rating 80%

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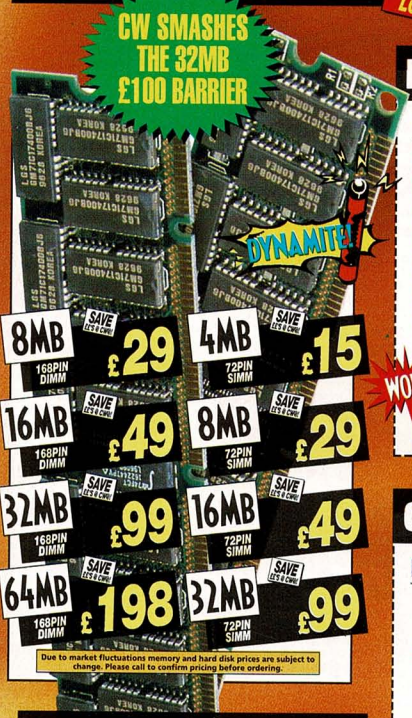

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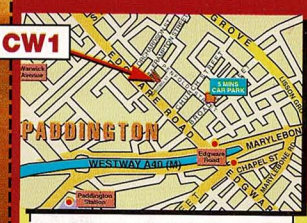

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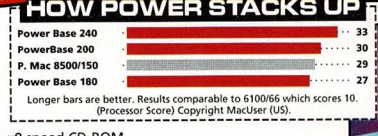

Longer bars are better. Results comparable to 6100/66 which scores 10. (Processor Score) Copyright MacUser (US).

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FASTEST MAC OS | GREAT BUNDLES | 604e MODELS | INCREDIBLE VALUE | SEE THEM TODAY!!

POWER TOWER PRO

FASTER AND BETTER THAN THE REST!!

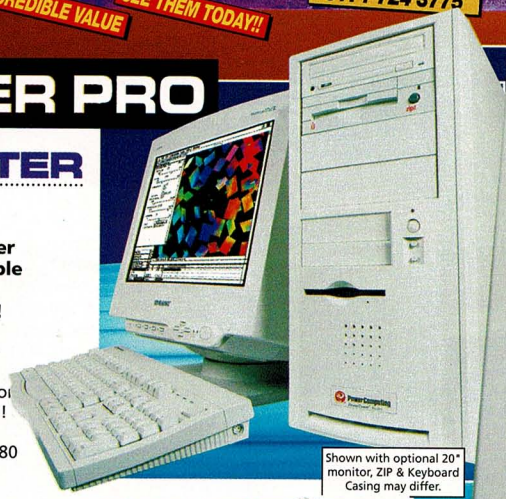
With a clock speed of 225MHz, the PowerTower Pro is not only the fastest and most expandable MacOS system ever designed, but also the fastest single processor desktop in the world!

- 225MHz 604e
- 16Mb RAM, exp 1 GIG
- 2 GIG AV hard drive
- 6 PCI Slots
- 9 bays (7 front accessible)
- 1Mb Level-2 cache
- Interleaved memory
- x8 speed CD-ROM
- Dual Processor Suppo
- Dual SCSI 10MB/sec!!

PLUS - 8Mb Twin Turbo graphics card included!
Fastest graphics card on the market - up to 1920 x 1080 in millions of cols!

PLUS - Over £500 of FREE SOFTWARE
Free software includes Speed Doubler, FWB Hard Disk Tool Kit PE, FWB CD-ROM Tool Kit, Claris Works, Now Utilities, Now Contact, Now Up-To-Date, US Atlas, The Animals, World Atlas, Grolier's Encyclopedia, 250 Bitstream Type 1 fonts!

NEW LITE VERSION! NEW!
The new Power Tower Pro Lite is now available with a 5400rpm H.drive, 512K Cache & a 2Mb ATI video card.



Shown with optional 20" monitor, ZIP & Keyboard Casing may differ.

"POWER COMPUTING HAS THE CLEAR AND UNDISPUTED EDGE IN BOTH PRICE & PERFORMANCE. YOU WANT A POWERTOWER PRO"
- MacUser (US) Magazine SEPT '96

"IF YOU REQUIRE MAXIMUM PERFORMANCE, NO CURRENT APPLE SYSTEM CAN TOUCH THE POWERTOWERS"
- MacWEEK Magazine

"THE POWERTOWER PRO SERIES ARE, AS A GROUP, THE FASTEST (MAC) SYSTEMS YOU CAN BUY"
- MacWorld Magazine OCT '96

"THE POWERTOWER PRO SERIES SOARS ABOVE ALL MAC RIVALS....MAC POWERUSERS WILL SOON BECOME POWER COMPUTING USERS IN DROVES"
- MacWEEK Magazine 22.7.96

POWER TOWER PRO LITE
225 Mhz 604e
16MB RAM, 2 GIG DRIVE x8 CD, 512K CACHE 2MB ATI VIDEO CARD
NEW!
£2795
£3284 INC VAT

PowerComputing

IN STOCK!!! WHY WAIT FOR SYSTEMS THAT MAY NEVER ARRIVE? CW HAVE BEEN SHIPPING 225MHZ FOR THE PAST THREE MONTHS! GET YOURS!!

THAT'S FAST!!

POWER CENTER	POWER BASE	POWER TOWER PRO
150MHz 604 RISC Integral FPU 32K on-chip cache	240MHz 603e RISC Integral FPU 32K on-chip cache	225MHz 604e RISC Integral FPU 64K on-chip cache
Via CPU daughter card	Via CPU daughter card	Via CPU daughter card. Dual support.
512K Level-2 Cache standard	256K Level-2 Cache standard	1Mb Level-2 Cache standard
3 PCI Slots	3 PCI Slots	6 PCI Slots
16Mb RAM DIMMS 512Mb max	16Mb RAM DIMMS 160Mb max	16Mb RAM DIMMS 1GB max
1MB VRAM 4Mb Max	2MB VRAM	8MB IMS Twin Turbo Graphics Card
x4 speed CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM
Mini Tower	Low Profile Desktop or Mini Tower	Tower

225 Mhz 604e
£3195
EX VAT EX KEYBOARD £3754 INC VAT
P.TOWER PRO 16/2GB, CD, 8MB TWIN TURBO

HOW POWER STACKS UP

Longer bars are better. Results comparable to Centris 650 which scores 1
Chart copyright MacWorld October 1996.

*LONGER BARS ARE BETTER

604 POWER CENTER

"Performance and price combine to make the PowerCenter the most sensible choice for business and graphics." - MacWorld July 1976

BEST VALUE 604'S YOU CAN BUY!!

For many office users who dabble in DTP and desktop video, PowerCenters are the natural CW choice. These stunning mid-range machines blow much of the competition away with a combination of cracking speed, good expansion and high specification. PowerCenters ship with 132Mhz or 150Mhz upgradable 604 RISC cpus, PCI expansion slots, Ethernet, on-board VRAM and a great software bundle.
Don't delay - Go for Power Computing PowerCenter systems if you're looking for incredible CW value.

"PERFORMANCE AND PRICE COMBINE TO MAKE THE POWER COMPUTING POWERCENTER THE MOST SENSIBLE CHOICE FOR BUSINESS AND GRAPHICS".
- MacWorld

MW EDITORS' CHOICE

MW ★★★★/7.3

CW IS KNOCKED OUT WITH THE SPEC.

- Choose from 132, 150MHz 604 RISC machines in Low profile or Mini Tower
- 512Kb Level-2 cache
- x4 speed CD-ROM
- 3 PCI expansion Slots
- 1Mb VRAM
- 16Mb RAM, exp to 256Mb (4 DIMM slots)
- CPU upgradability via CPU daughter card
- 1 GIG hard drive
- In-built Ethernet
- 2 spare bays for Zip, Jaz CD Writer (on mini tower)

PLUS - Over £500 of FREE SOFTWARE
Free software includes * FWB Hard Disk Tool Kit PE * FWB CD-ROM Tool Kit * ClarisWorks * Grolier's Multimedia Encyclopedia * Now Contact * Now Up-to-Date * Nisus Writer [Trial] * Intuit's Quicken SE * America Online [Trial] * Compuserve [Trial] * 250 Bitstream Type 1 and Type 2 fonts **AND MORE!!**

Shown with optional 17" monitor. Casing may differ.

WOW! LOW-COST MEGA SPEED

132 Mhz 604
£1399
EX KEYBOARD EX VAT £1644 INC VAT
POWER CENTER 16/1GB X4 CD-ROM

150 Mhz 604 **P.CENTER 16/1G, X4 CD,**
£1599
£1879 INC VAT

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VOTED 1995 AND 1996 MacUser RESELLER OF THE YEAR

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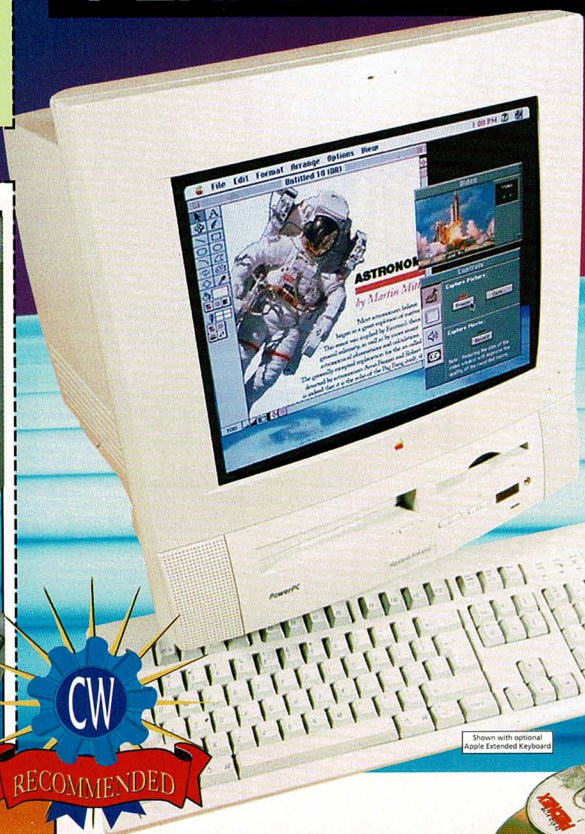
708A TUDOR ESTATE. ABBEY RD. LONDON NW10 FAX: 0181 963 0624

BUY A PERFORMA 5400 OR 6400 BEFORE JAN 31ST 1997 AND CLAIM A £200 CASH-BACK FROM APPLE COMPUTER! HURRY ALONG NOW

THE PERFORMA ADVANTAGE

Apple Macintosh Performa computers are CW recommended for the home and individuals. Every model is a complete multimedia computer A variety of software applications and utilities are already installed in these computers to help you and your family be more productive. Software applications are included with all models and third-party applications and CD-ROMs are included in most models.

PERFORMA 5320/120



It' all here - nothing else to buy. This is a complete system!!

- *15" Monitor*
- *Stereo speakers*
- *x4 speed CD-ROM*
- *CW Keyboard*
- *MPEG Card*
- *TV/Video IN*
- *28.8 Modem*
- *FREE software*

WOW!

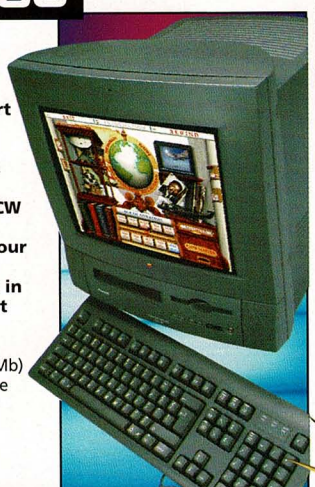
FREE SOFTWARE

5400/180

A GREAT CW BUY!!

With its state-of-the art RISC-based processor and advanced multimedia capability, the all-in-one Apple Performa 5400/180 is CW ready to inspire your creativity and boost your productivity.
And this model comes in 'living-room black' just like your tele!

- 180Mhz PowerPC 603e
- 16Mb RAM (exp to 136Mb)
- Internal 1.6GB hard drive
- x8 speed CD-ROM drive
- Integral a 15" monitor with 1,000s of colors
- TV Tuner
- 28.8 FAX/Modem
- Optional MPEG Card
- **FREE SOFTWARE** loads of CD's (see below)!!



180Mhz 603e	5400/180 16/1.6, CD TV

£1699

£1996 INC VAT

CW RECOMMENDED

FREE SOFTWARE

BOTH 5400 MODELS COME PRE-LOADED WITH ALL THIS GREAT SOFTWARE!!

MacOS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Disney - Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview), 120 Letters, Acrobat Reader, At Ease, Groliers Encyclopedia, ClarisWorks v4, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa ClickArt, Thinking Things 3, Sammy's Science House, PowerPete. Plus Apple Internet Connection Kit.

WOW!

EVERYTHING'S INCLUDED!

This is it. The most incredible deal of the year! How CW does it time and again is beyond me. A complete 120Mhz Macintosh system with 15" monitor, MPEG card, TV Tuner and 28.8 modem, keyboard, mouse and software for less than £1200! Stocks are limited so place your order TODAY to avoid disappointment.

- Powerful and speedy 120Mhz PowerPC 603
- 8Mb of on-board RAM memory
- 1.2Gigabyte internal Hard Drive fitted
- Built-in stereo speakers & microphone
- Integrated 15" color monitor (13" viewable)
- TV tuner + remote control included
- Video IN for QuickTime recording
- Built-in x4 speed CD-ROM drive
- CW extended keyboard & Apple mouse
- Internet-ready 28.8 FAX/DATA Modem
- MPEG video card included
- **FREE (& only at CW) Grolier Encyclopedia, Guiness Book of Records & much more!!**

FREE SOFTWARE

DISNEY PLUS 3 SOFTWARE PACK INCLUDED - FREE!!

INSTALLED ON HARD DRIVE: At Ease, Claris Works, ClickArt, Hypercard Player, MacGallery, Mavis Beacon Teaches Typing, Millies Math House, Spin Doctor, SuperMaze Wars, Thinking Things 2
INCLUDED ON CD-ROM: Dorling Kindersley 'The Way Things Work', Groliers Encyclopedia, Making Music, Myst, Rednex, Rock, Rap & Roll, Daedelus Encounter, Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview). PLUS Apple Internet Connection Kit!

ADD A GENUINE LASER PRINTER!

Why not make your 5320 complete with a genuine Brother LASER PRINTER. That's right, not an ink-jet but a great 300dpi 6ppm award winning laser which uses microfine toner for the most gorgeous output that an Ink-jet cannot hope to match!!

£1349 £1585 INC VAT

5320 + BROTHER LASER PRINTER

5400/160

FREE SOFTWARE

EXCEPTIONAL VALUE!!

If you're looking for a great value all-in-one solution with enough grunt to handle all the latest games and multimedia titles, this could be the Mac for you. Same spec as the 5400/180 yet with a 160Mhz processor and minus the TV tuner. CW ideal for home, office and classroom!!

- 160Mhz PowerPC 603e
- 16Mb RAM (exp to 136Mb)
- Internal 1.6GB hard drive
- x8 speed CD-ROM drive
- Integral a 15" monitor with 1,000s of colors
- 28.8 FAX/Modem
- Optional MPEG Card
- **FREE SOFTWARE** loads of CD's (see above)!!

160Mhz 603e	5400/160 16/1.6, CD TV

£1449

£1703 INC VAT

SAVE ££££'S!

LIMITED STOCK

LOOKS GOOD!

120Mhz 603

£1199

5320 8/1.2GB, CD, 28.8 MODEM, MPEG, TV

INC CW KEYBOARD EX VAT £1409 INC VAT

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"These Performas are just the tops. They're just such good value!!"

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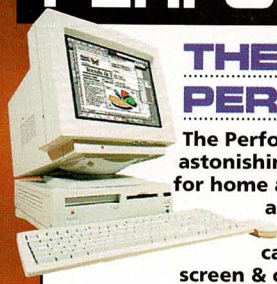
0171 724 3775

WOW!

LOWEST PRICE IN THE UNITED KINGDOM!

BUY A PERFORMA 5400 OR 6400 BEFORE JAN 31ST 1997 AND CLAIM A £200 CASH-BACK FROM APPLE COMPUTER!

PERFORMA 6320/120



THE BEST VALUE PERFORMA EVER!

The Performa 6320 delivers quite astonishing CW value and is recommended for home and education users who find the all-in-one approach of the 5320/5400 too limiting. With this Mac you can take advantage of a larger screen & choose from a range of options including in-built TV Tuner, MPEG Video Card, Modem etc. In addition you also get FREE a fantastic software bundle packed with great games and education titles. CW says "This is the best value - EVER!!"

14" MONITOR
14.4 MODEM
COLOR PRINTER
KEYBOARD
APPLE MOUSE
COMPLETE SYSTEM!!

120Mhz 603 — 6320/120 8/1.2GB CD

£799

£939 INC VAT

- 120Mhz PowerPC 603e processor
- 8Mb RAM (expandable 64Mb)
- 1.2GB internal hard drive
- Optional Video IN capability
- Built-in x4 speed CD-ROM drive

System components may differ from those illustrated

THE COMPLETE SYSTEM

Includes all cables!

YOU GET ALL THIS FOR LESS THAN £1000!!

- 6320/8/1.2CD as described above with CW keyboard & mouse
- CW 14" quality color monitor
- CW 14.4 'Internet-ready' external FAX/DATA modem
- CW A4 COLOR plain paper printer

FREE SOFTWARE

120Mhz 603

£999

SAVE £££££'S!

6320 8/1.2CD COMPLETE SYSTEM!!

INC KEYB & MONITOR EX VAT £1174 INC VAT

DISNEY PLUS 3 SOFTWARE PACK INCLUDED - FREE!!

INSTALLED ON HARD DRIVE: At Ease, Claris Works, ClickArt, Hypercard Player, MacGallery, Mavis Beacon Teaches Typing, Millies Math House, Spin Doctor, SuperMaze Wars, Thinking Things 2

INCLUDED ON CD-ROM: Dorling Kindersley 'The Way Things Work', Groliers Encyclopedia, Making Music, Myst, Rednex, Rock, Rap & Roll, Daedelus Encounter, Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview). PLUS Apple Internet Connection Kit!

PERFORMA 6400

FREE PERFORMA 6400

BOTH CW PERFORMA 6400 MODELS COME PRE-LOADED WITH ALL THIS GREAT SOFTWARE!

MacOS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Disney - Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview), 120 Letters, Acrobat Reader, At Ease, Groliers Encyclopedia, ClarisWorks v4, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa ClickArt, Thinking Things 3, Sammy's Science House, PowerPete. Plus Apple Internet Connection Kit, Claris Organizer and Claris Impact.

YOU CAN'T BUY BETTER!

Shown with optional 14" monitor & keyboard

6400/180

The same super mini-tower design as its big brother but with a slightly less powerful processor. A great machine for the home office!!

- 180Mhz PowerPC 603e processor
- 16Mb RAM (exp to 136Mb)
- Runs a 15" monitor @ 1,000s of colors
- Internal 1.6GB hard drive
- x8 speed CD
- 28.8 modem
- **FREE CD's!!** See above list for details.

180Mhz 603e — 6400/180 16/1.6, CD 28.8

£1349

£1585 INC VAT

MINI TOWER WITH THE BIG PUNCH!!

Here it is, the great new little Mini Tower from Apple bristling with CW exciting features. It's a fast little devil as well, as it comes equipped with a choice of 180 or 200Mhz PowerPC 603e processor. Expansion is taken care of via (for the first time in a Performa) PCI slots and multimedia capability is huge thanks to 16-bit stereo SRS™ 3D Surround Sound, 16-bit color display support and an in-built x8 speed CD-ROM. Here's the low down.

- Choose 180Mhz or 200Mhz 603e processor
- 16Mb (exp to 136Mb) RAM, 2.4GB Drive (180 1.6GB)
- 1Mb VRAM for 16-bit color support
- x8 speed CD-ROM
- 28.8bps Internet-ready modem included
- Integrated sub woofer & SRS 3D surround sound

YOU DECIDE....

NEW!

180 MHZ 603e POWER PC

200 MHZ 603e POWER PC

Shown with optional 14" monitor & keyboard

200Mhz 603e

£1599

SAVE £££'S!

6400/200 16/2.4, X8CD, 28.8 MODEM

INCLUDES CACHE!

INC CW KEYBOARD EX VAT £1879 INC VAT

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VOTED 1995 AND 1996 MacUser RESELLER OF THE YEAR

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POWER MAC 4400

APPLE'S NEWEST POWER MACINTOSH!

160 Mhz 603e PROCESSOR

CW RECOMMENDED

This great new Power Macintosh is ready to slot right into your business world. A Speedy 160MHz PowerPC 603e processor takes care of the number crunching and there's plenty of expansion options with 3 in-built PCI slots. It's got a great turn of speed as well with MacUser magazine rating it considerably faster than a 7200/90 in real world tests. Good speed, good expansion and the Apple brand of quality - what else do you need?

- 160MHz PowerPC 603e processor
- Integrated FPU and 32K cache
- Optional 256K level 2 cache
- Internal 1.2GB Hard Drive
- 3 PCI expansion slots
- I6Mb EDO RAM
- Upgradable processor
- Expandable to 160Mb
- Internal 8x-speed CD-ROM drive
- 1Mb EDO VRAM (expandable to 4Mb)

CW RECOMMENDED FOR ALL OFFICE WORK

160 Mhz 603e

SAVE ££££'S!

£899

EX KEYBOIARD & VAT £1056 INC VAT

POWERMAC 4400/160 16/1.2GB X8CD

Shown with optional 17" monitor, & Keyboard

4400 + 15" MS | 4400/160 16/1.2 X8CD

£1099

£1291 INC VAT

SAVE ££££'S!

COMPLETE SYSTEM

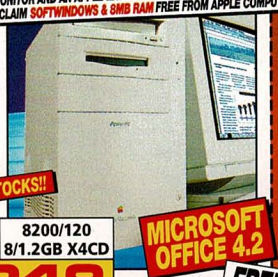
8200/120

AFFORDABLE APPLE TOWER

BUY A POWERMAC 8200/120 WITH AN APPLE 17" OR LARGER MONITOR AND AN APPLE EXT KEYBOARD BEFORE FEB 14TH 1997 AND CLAIM SOFTWINDOWS & 8MB RAM FREE FROM APPLE COMPUTER!

Superb expansion and great value, - ideal for general office use. CW recommended.

- 120 Mhz PowerPC 601
- 8Mb RAM (exp to 256Mb)
- 256K Level 2 cache
- 1.2 Gigabyte hard drive
- x4 speed CD-ROM drive
- In-built Ethernet
- Dual Channel SCSI
- 3 PCI expansion slots
- Price includes on-board VRAM video display



LIMITED STOCKS!!

120 Mhz 601 | 8200/120 8/1.2GB X4CD

£1249

£1468 INC VAT

MICROSOFT OFFICE 4.2 FREE WITH THIS MAC

P.MAC 7600/132

THE POWER MACINTOSH OFFICE STANDARD

YOU CAN'T BUY BETTER!

LIMITED STOCKS!!

The Power Macintosh 7600 is built around a super-speedy 132Mhz version of the PowerPC 604 processor and 3 high-performance PCI expansion slots.
In addition this superb machine features great multimedia and video-conferencing facilities as it comes with both S-video and Composite video inputs as well as 16-bit stereo audio.
That means without laying out for extra video capture hardware you can record quality QuickTime video clips and get into video conferencing.
AND for a limited time only, this machine comes complete with Microsoft Office 4.2.1!!

- 132Mhz PowerPC 604
- CPU upgradability
- 256Kb Level-2 cache
- 16Mb RAM, exp to 512Mb
- 3 PCI expansion Slots
- x8 speed CD-ROM
- Internal 1.2G Hard Drive
- Ethernet
- 2Mb VRAM
- Dual high-performance SCSI
- Composite and S-video video input

WOW!

Shown with optional 17" monitor, & Keyboard

MICROSOFT OFFICE 4.2 FREE WITH THIS MAC

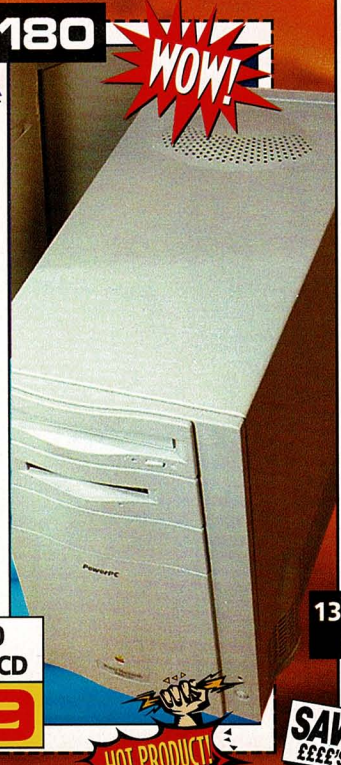
8500/180

MULTIMEDIA HOT SHOT

WOW!

With great video capture and video output this supeb offering offers multimedia capability right out of the box! Probably the best value Power Macintosh available CW recommends this superb model to graphics professionals and multimedia authors alike.

- 180Mhz PowerPC 604e
- Upgradable processor
- 16Mb RAM (exp to 512Mb)
- 256K Level 2 cache
- 2 Gigabyte hard drive
- x8 speed CD-ROM drive
- Ethernet as standard
- 2Mb VRAM (Exp to 4)
- 3 PCI slots
- Video IN/OUT



180Mhz 604e | 8500/180 16/2GB X8CD

£2369

£2784 INC VAT

HOT PRODUCT!

132 Mhz 604

£1699

EX KEYBOIARD & VAT £1996 INC VAT

SAVE ££££'S!

POWERMAC 7600/132 16/1.2GB X8CD

BUY A POWERMAC 7600/132 WITH AN APPLE 17" OR LARGER MONITOR AND AN APPLE EXT KEYBOARD BEFORE FEB 14TH 1997 AND CLAIM SOFTWINDOWS & 8MB RAM FREE FROM APPLE COMPUTER!

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FAX NOW WITH YOUR REQUIREMENTS & CW WILL FAX BACK A SUPER-LOW QUOTE IN A FLASH!
0171 724 3775

IN STOCK NOW!! LOWEST UK PRICES! SEE THEM AT CW! SPECIAL OFFERS EXCLUSIVE DEALS

APPLE POWER MACINTOSH

HOT PRODUCT!

FASTER

POWER MACINTOSH

Power Macintosh computers were the first Apple computers to use the RISC-based PowerPC processor and now incorporate the industry-standard PCI (Peripheral Component Interconnect) bus architecture, they maximise the performance capabilities of their underlying RISC architecture for even faster graphics acceleration and network performance.

	P.MAC 4400/160	P.MAC 8200/120	P.MAC 7600/132	P.MAC 8500/180	P.MAC 9500/200	P.MAC 9500/180MP
PROCESSOR PowerPC	160MHz 603e RISC Integral FPU 32K on-chip cache	120MHz 601 RISC Integral FPU 32K on-chip cache	132MHz 604 RISC Integral FPU 32K on-chip cache	180MHz 604e RISC Integral FPU 64K on-chip cache	200MHz 604e RISC Integral FPU 64K on-chip cache	2 x 180MHz 604e RISC Integral FPU 64K on-chip cache
UPGRADABILITY	No	No	Via CPU daughtercard	Via CPU daughtercard	Via CPU daughtercard	Via CPU daughtercard
LEVEL 2 CACHE	256K Level-2 Cache optional	256K Level-2 Cache standard	256K Level-2 Cache standard	256K Level-2 Cache standard	512K Level-2 Cache standard	512K Level-2 Cache standard
EXPANSION	3 PCI Slots	3 PCI Slots	3 PCI Slots	3 PCI Slots	6 PCI Slots	6 PCI Slots
MEMORY	16Mb RAM EDO RAM 160 Mb max	16Mb RAM DIMMs 256 Mb max	16Mb RAM DIMMs 256 Mb max	16Mb RAM DIMMs 256 Mb max	32Mb RAM DIMMs 768 Mb max	32Mb RAM DIMMs 768 Mb max
GRAPHICS	1MB VRAM 4Mb Max	1MB VRAM 4Mb Max	2MB VRAM 4Mb Max	2MB VRAM 4Mb Max	PCI card	PCI card
CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM
OTHER FEATURES	Desktop	Ethernet	Ethernet Video IN	Ethernet Video IN/OUT	Ethernet Video IN/OUT	Ethernet Video IN/OUT

9500/200

WOW!

Mega power and masses of expandability from this six slot monster. A MUST for graphics and video professionals!

- 200Mhz 604e processor
- 512K Level 2 cache
- 32Mb RAM (exp 768)
- 6PCI slots, Ethernet, dual SCSI
- 2G Hard Drive, x8 speed CD drive

200Mhz 604e | 9500/200 32/2G x8CD

£2799

£3289 INC VAT

SAVE ££'S @ CW!

9500 MP

WOW!

Multi processing is the BIG THING! Photoshop and some 3D applications already take advantage to offer blistering performance!

- Two 180Mhz 604e processors
- 512K Level 2 cache
- 32Mb RAM (exp 768)
- 6PCI slots, Ethernet, dual SCSI
- 2G Hard Drive, x8 speed CD drive

180Mhz X2 604e | 9500/180MP 32/2G x8CD

£3399

£3988 INC VAT

SAVE ££'S @ CW!

WHICH PROCESSOR?

ALL YOU NEED TO KNOW ABOUT PROCESSORS!

It used to be easy, If you wanted the fastest Mac, all you had to do is look for the Mhz rating and go for the higher rating. Unfortunately things aren't quite so easy nowerdays what with 604's, 601's, 604e's and 603e's. You can no longer reliably compare a computers performance by just looking at the speed of the processor alone. You need to know which processor and how much on-chip (Level 1) and Level 2 cache there is. (Plus of course the speed of the hard drive, how much RAM is present etc.) The 603 family's and 604 family's are very different and you cannot directly compare MHz for MHz. Another important factor is the speed of the main board bus. Modern processors (604, 603e etc) run faster than the main board speed by using clock multiplies. For example the 9500/200 uses a Tsunami based board design which can run at bus speeds up to 50Mhz. Slot in a 604e, clock it at 4x and you get 200Mhz. A PowerTower by comparison uses a Catalyst board design which runs at a 60Mhz bus speed. Slot in a 604, clock it at 3x and you get 180Mhz. The Bus speed is an important factor in comparing a computers actual performance. MacUser recently did a test with a 240Mhz 604e on a 48Mhz bus and the same chip on a 60Mhz bus and found that the latter gave a significant performance increase. Because of all this clock doubling, tripling and quadrupling, the amount of Level 2 cache comes in to play. The processor uses the Level 2 cache (very high speed memory) while waiting for the board bus. The higher the clock multiply, the larger the cache required. For example the 9500/200 has a 512K of Level 2 cache, the 8500/180 has 256K and most of its performance gains are as a result of this and not necessarily the extra 20Mhz.

PowerPC 601
- The original PowerPC processor. Single 32-Kbyte unified (Lev 1) cache. 64-bit data bus, built-in FPU, Superscaler-3 instructions per clock.

PowerPC 603
- Used in PowerBooks and Performas. Separate 8-Kbyte instruction and data caches (Lev 1) , built-in FPU

PowerPC 603e
- As above but with separate 16-Kbyte instruction & data caches (Lev 1)

PowerPC 603e-200
- As 603e but with up to 6x clock multiplier support.

PowerPC 604
- Separate 16-Kbyte instruction & data caches (Lev 1). 4 instructions per clock.

PowerPC 604e
- Used in PowerMac 9500/200 etc, separate 32-Kbyte instruction & data caches (Lev 1). 4 instructions per clock.

BUS SPEED???
WHICH PROCESSOR?
CLOCK SPEED??

UMAX

SAVE ££££'S!

NEW!

3 SUPERB UMAX TOWERS

The Umax Pulsar Towers are perfect for those users who require good speed and plenty of expansion possibilities. Choose 150Mhz 604 or new 180Mhz & 200Mhz 604e power with Dual Processor capability and expandable up to 1040Mb of RAM. You also get 5 expansion bays and 6 PCI slots, x8 speed CD. See them @ CW!

- Attractive, modern case design with unique swing-door
- 150Mhz 604 or 200Mhz 604e
- 512k Level 2 Cache
- 16Mb RAM (exp to 1040Mb
- Fast SCSI interface
- Dual Processor Capable
- LocalTalk & Ethernet
- 6 PCI expansion slots
- Interleaved memory
- x8 speed in-built CD-ROM
- 5 expansion bays
- **IN STOCK @ CW NOW!!**

SAVE ££'S @ CW!

6 PCI EXP. SLOTS
MAX 1GB OF RAM
UPGRADABLE
3 GREAT MODELS
SEE THEM TODAY!!

166 Mhz 604 | PULSAR LITE 16/2GB CD
£BEST IN THE UK

200 Mhz 604e | PULSAR 2000 16/2GB CD
£BEST IN THE UK

225 Mhz 604e | PULSAR 2250 16/2GB CD
£BEST IN THE UK

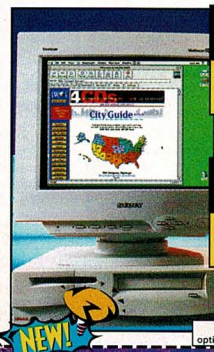
NEW!

APUS

All Umax Apus systems 100% MacOS compatible and run all Macintosh applications. They are also upgradable via a cpu swap to 240MHz! And they come with ClarisWorks v4, and FWB disk utilities.

GREAT VALUE & PERFORMANCE

These great new systems also offer all the benefits of the Apple Mac OS combined with excellent performance. The Apus 2000 comes equipped with a PowerPC 603e processor which can be specified in 166MHz flavour while the tower Apus 3000 can be had as a super-speedy 200MHz machine delivering a real alternative to the Apple 6400. The other good news is that all have their processors mounted for easy upgradability - to 240MHz!!



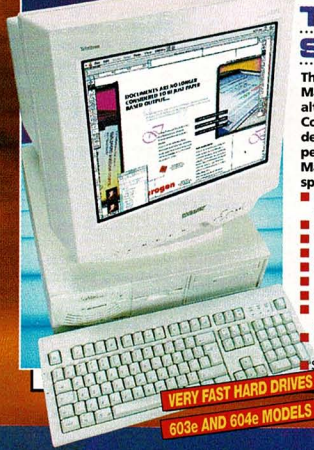
166 Mhz 603e | APUS 2000 16/2.1 X8 CD
£849
£998 INC VAT

200 Mhz 603e | APUS 3000 16/2.1 X8 CD
£1299
£1526 INC VAT

Shown with optional17" monitor

NEW!

MOTOROLA STARMAX



TOP NEW MAC OS SYSTEMS

The New Motorola StarMax systems are 100% MacOS compatible and offer an interesting alternative to the offerings from Apple, Power Computing, Umax et al. Available in slimline desktop or stylish tower designs CW reckons the performance and feature mix will excite many a Mac user. Choose from 603e or 604e processors at speeds from 160MHz to 200Mhz.

- Choose from 603e (160MHz & 200MHz 32K internal cache) or 604e (160MHz & 200MHz 64k internal cache)
- All 4 models available in desktop or mini-tower
- 3 EDO RAM slots (2 slots - dual and single banks)
- Maximum RAM = 160Mb
- 256K level 2 cache (512K on the 4000 systems)
- 1Mb EDO VRAM (exp to 4Mb)
- x8 speed IDE CD-ROM
- 1.2G hard drive (desktop), 2.5G drive (tower)
- PCI expansion slots (3 desktop, 5 tower)
- SVGA monitor port

VERY FAST HARD DRIVES
603e AND 604e MODELS
256K OR 512K CACHE
DESKTOP OR MINI TOWER

A GREAT CHOICE!

NEW!

Mac® OS compatible systems with industry-leading price performance and quality. The StarMax 3000 & 4000 features a state-of-the-art PowerPC 603e™ and 604e™ microprocessors with speeds up to 200 MHz, a minimum of 16MB standard memory, and a 256K Level 2 cache - all designed to deliver significant performance at an aggressive price. Every Motorola StarMax system comes pre-loaded with the same Mac OS you know and rely on. Multimedia is there in the form of 16-bit stereo sound and an 8x speed CD-ROM. The affordable StarMax family combines user-friendly Mac OS features with Motorola quality and dependability.

MAC OS 100% COMPATIBLE

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£CALL FOR THE BEST MOTOROLA STARMAX PRICES

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DIGITAL CAMERAS

NEW!

YOU CAN'T BUY BETTER!

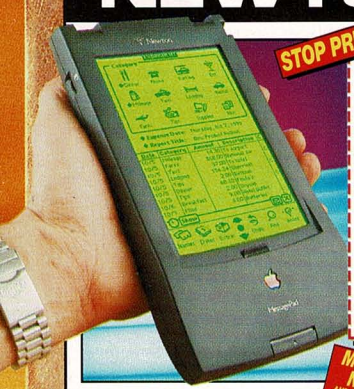
HERE AT CW - NOW!

Digital Cameras are the BIG NEWS of 1997 - and CW has the best selection. Choose from tiny - pocket sized offerings from Kodak and Casio to the superb Polaroid PDC-2000. All offer the advantage of quick images direct into your Macintosh with minimum fuss. No film - no processing - no scanning. Applications include:

- Estate Agents - Take pictures of houses right up to 'press-day' - Great for last minute mail-outs!
- Employers - store mug shots of your employees in database records
- Education - pupils can take as many images as they like - no film remember!
- Auction goers - take pictures on preview day and view at home to make your bid decisions

HERE AT CW NOW | GREAT SELECTION | BEST UK PRCIES! | SAVE ££'S @ CW!

NEWTON



STOP PRESS! NEW!

NEW MESSAGE PAD 2000 Apple's new PDA features Internet access, spreadsheet and new word processing capabilities. - CALL for pricing!

MESSAGE PAD 120 NOW ONLY £399 AND REPRESENTING INCREDIBLE VALUE!

LIMITED STOCKS!!

NEWTON MESSAGE PAD 130

Better handwriting recognition, a funky back-lit screen, landscape or portrait operation, 1/2Mb more system RAM, full class II FAX support and more. Plus speedy from 20Mhz RISC processor & software!

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£449
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NEWTON MESSAGE PAD 130

PSION ORGANISERS

YOU CAN'T BUY BETTER!

3A & 3C PALM-TOP COMPUTERS

Slips handily into your pocket and ready for immediate use, the Psion 3c and 3a organisers are world beaters! In-built applications include

- Spreadsheet
- Calculator
- Outliner
- Personal M'ment
- Thesaurus
- Digital voice record
- Word Processor
- Database
- Spell checker
- Programming

PSION 3a AND 3c
£BEST
UK PRICE

3c ADDS INFRA-RED, JOTTER & DATABASE LIST!

CW SPECIALISES IN POWERBOOK GSM & ORANGE LINKS - CALL NOW!

ORANGE PHONE

YOU CAN'T BUY BETTER!

BEST VALUE MOBILE COMMUNICATIONS!

Time and again Orange has proven to be the best value digital phone network. With most of the country now covered isn't it time you switched to Orange?

- Per second billing
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Connect your Orange to your PowerBook!

- Call for more information

ORANGE NOKIA PHONE
£BEST
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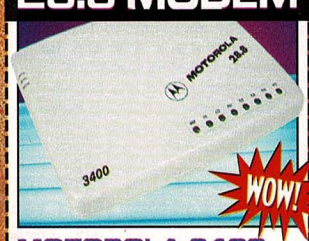
CALL FOR TARIF OPTIONS & BEST UK PRICES!

28.8 MODEM



WOW!

MOTOROLA 3400 28.8 MODEM

Your low cost route to the Internet! Connect to on-line services - transfer data between buddies - send and receive faxes direct from your Mac - All possible!

SAVE ££'S @ CW!
BEAT THAT!!
£110
EX VAT £129 INC VAT
MOTOROLA 3400

36.6 MODEM

LASAT SAFIRE 33.6 MODEM

Check out this speedy 36.6 modem - its unbelievable! Now fast Internet connection can be yours - for the price of a normal 28.8! So easy to install and use! Call us today!

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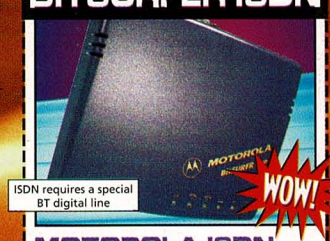
BEAT THAT!!
£99
EX VAT £117 INC VAT
LASAT SAFIRE 36.6 MODEM

BITSURFER ISDN



ISDN requires a special BT digital line

WOW!

MOTOROLA ISDN BITSURFER PRO

The ISDN modem which lets you access the power of ISDN for all your home and office communications. Over four times the speed of the fastest analog modem - up to 128,000 bps!

SAVE ££'S @ CW!
BEAT THAT!!
£299
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MOTOROLA BITSURFER ISDN

KODAK DC-20

FREE KAI'S GOO!

£199 KODAK DC-20 £234 INC VAT

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DIGITAL SCIENCE CAMERA

Just point, shoot then plug into your Mac! Fun and ideal for Web images.

- 494 x 373 pixels
- 1MB memory
- 16 images
- Integral flash

KODAK DC-25

WOW!

FREE KAI'S GOO!

£329 KODAK DC-25 £387 INC VAT

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DIGITAL SCIENCE CAMERA

Inexpensive and easy to use!

- Max 493 x 373 pixels
- 14 high res or 29 standard images
- Built-in flash
- Automatic time LCD panel

KODAK DC-40

£399 KODAK DC-40 £469 INC VAT

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DIGITAL SCIENCE CAMERA

Larger images produced make this camera ideal for in-house dtp.

- 756 x 504 pixels
- In-built flash
- Auto shutter speed & flash
- 4Mb memory

KODAK DC-50

£565 KODAK DC-50 £664 INC VAT

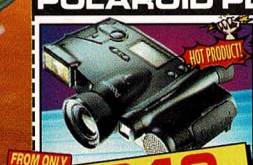
SAVE ££'S @ CW!

DIGITAL SCIENCE CAMERA

Superb images and variable shutter speed.

- 756 x 504 pixels
- 1MB exp to 16Mb
- Optional PCMCIA card. (4Mb card holds up to 88 images)

POLAROID PDC-2000



FROM ONLY **£2349** POLAROID PDC-2000 £2760 INC VAT

SAVE ££'S @ CW!

HIGH QUALITY IMAGING

Great quality and quite superb value

- 1600 x 1200 pixels
- Up to 60 High-res images
- Auto-focus & in-built flash
- SCSI-2 interface
- CW recommended

FUJI DS-7

WOW!

NEW!

£499 FUJI DS-7 DIGITAL £586 INC VAT

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AWARD WINNING!

Great value and winner of the MacUser 'Best Buy'

- 640 x 480 pixels
- Up to 60 images
- Expandable via PC card
- Integral LCD viewing panel

CASIO QV10A

£299 CASIO QV10a £351 INC VAT

SAVE ££'S @ CW!

NEAT AND SMALL

Handy and ultra-compact. The ideal space-saver!

- 320 x 240 pixels
- Up to 96 images
- Twisting LCD viewing panel - see yourself!
- In-built flash

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NEW POWERBOOKS

CW JUST LOVES THE 'EPIC' FEATURES!

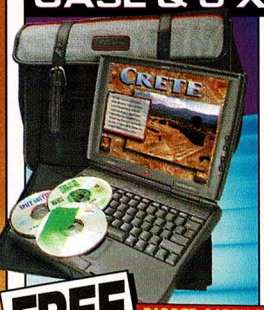
WOW!

The Macintosh PowerBook 1400 series computers incorporate the most advanced computer technologies, making them ideal for CW who demands exceptionally high performance. These superb notebooks come with nifty PowerPC 603e processors, PCMCIA slots, GSM connectivity option and, for the first time in an Apple notebook, a built-in CD-ROM drive bay.
Their built-in PCMCIA slots make it easy to add storage, wired or wireless networking and other capabilities. There's even an expansion bay for adding a 3.5" device such as optical drive etc.
Long battery life and software compatibility with Windows and DOS files make these new CW favourites the best in portable technology.
Try one yourself at CW today!!

NEW!

Model shown is a 1400c/133 with CD

CASE & 3 X CDS! FREE!



Buy a PowerBook 1400 series from CW and he'll give you a Delux Padded Case - with plenty of compartments for papers, pens, disks etc.) and 3 great CD multimedia titles (Guiness Book of Records, Grolier Encyclopedia & Space Shuttle) ABSOLUTELY FREE!

FREE AT CW!! PADDED CARRY CASE 3 GREAT CD TITLES!

NOW WITH CD-ROM!
The new PowerBook 1400 series (with the exception of the 1400c/117 floppy) include a x6 speed CD-ROM drive. Ideal for multimedia applications!

INCLUDED WITH ALL 1400 SERIES POWERBOOKS
System 7.5.3
AppleTalk Remote Access 2.1
Apple InterNet Connection Kit
Apple GSM Connection Kit 1.5
ClarisWorks 4.0
Claris Organiser
Route 66
Apple IR File Exchange
PowerBook File Assistant

117Mhz 603e

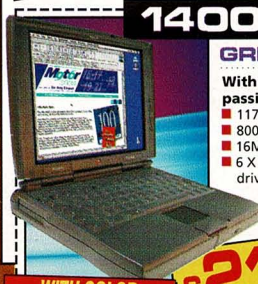
£1629

EX KEYBOARD EX VAT £1914 INC VAT

SAVE ££'s @ CW!

1400CS 12/750 FLOPPY (NO CD)

1400cs/117



GREAT VALUE

With economical Dual-Scan passive matric screen
- 117 Mhz PPC 603e processor
- 800x600 screen, 1MB VRAM
- 16Mb RAM ■ 750Mb drive
- 6 X CD-ROM drive (Floppy drive in accessory kit)
- Comes with Color StyleWriter 2200

WITH COLOR STYLEWRITER 2200!

£2149 1400CS/117 16/750 CD £2525 INC VAT

1400c/117

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Gorgeous Active matrix screen & in-built CD!
- 117 Mhz PPC 603e processor
- 800x600 screen, 1MB VRAM
- 16Mb RAM
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- 6 X CD-ROM drive (Floppy drive in accessory kit)
- Love it!!

FREE CASE & 3x CD'S

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1400c/133

VERY FAST

The most powerful Apple notebook packs 133MHz!!
- 133 Mhz + 128k L2 cache
- 16Mb RAM ■ 1Gig drive
- Active matrix 800x600 screen
- 1Mb VRAM for 16-bit color
- 6x CD-ROM drive (Floppy drive in accessory kit)
- Just brilliant!!

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190/66cs

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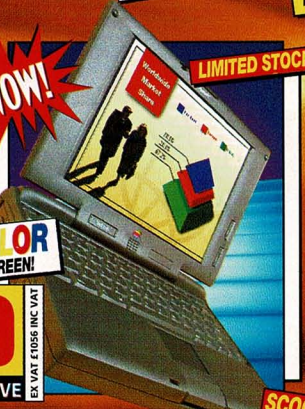
LIMITED STOCKS!!

Great value COLOR PowerBook with 68040 power. Hurry - Limited Stocks and exclsuive to Computer Warehouse.
- 66/33MHz 68LC040 processor
- 8MB RAM - expandable to 40Mb
- 500MB Hard Drive fitted
- 9.5" backlit COLOR passive matrix LCD screen. 256 colors @ 640 x 480 resolution



190/66cs 8MB RAM

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190/66CS 8MB RAM 500MB HARD DRIVE

ACCESSORIES

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CW is proud to announce our newest PowerBook accessory line for the Apple PowerBook 1400 series. Once again CW gives you all the extras needed to make your PowerBook experience more efficient. From our array of storage options to our battery chargers, CW continues to offer you the quality and convenience which makes CW the no.1 Portable Solutions Warehouse.

ZIP 100 Expansion Bay Drive available 03/97	£229	ex vat
1.2GB Expansion Bay Hard Drive	£329	ex vat
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The Apple Personal LaserWriter 300 offers genuine Apple laser quality printing for the price of a mid-range ink-jet! Ideal for both office and home use. Call Computer Warehouse today for a great bargain!

- Genuine 300dpi mono print engine
- Speedy 4 pages per minute operation

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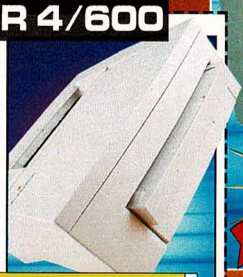
L.WRITER 4/600

600DPI POSTSCRIPT

Here's a 600dpi PostScript laser for the price of a personal printer. LaserBridge software allows integration into Ethernet networks. Ideal for home, education and small business users!

- 600dpi print engine
- 4 ppm operation
- LocalTalk network
- PostScript Level 2 - Ideal for low-end DTP!



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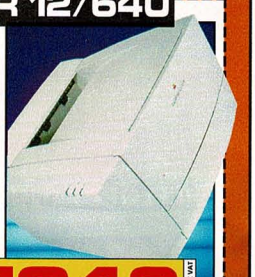
LASERWRITER 4/600PS

L.WRITER 12/640

12 PAGES PER MINUTE

High performance PostScript laser printer from Apple that provides incredible results. Easy to use and convenient all at an unbelievably affordable price! Supports Adobe PostScript level 2.

- 600dpi (250 sheet feeder)
- 12 ppm
- Expandable RAM
- Expansion kit adds duplex capability



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- 600dpi resolution with FinePrint & Photograde
- PostScript Level 2
- 16ppm operation
- Two trays on-line + option of a third!

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£1299 EX VAT £1526 INC VAT

LASERWRITER 16/600PS

300DPI LASER!!

No longer you have to suffer paper jams when printing on various media size, weight or style. The HL-630/631 is CW's answer.

EXCLUSIVE AVAILABLE ONLY FROM CW!

Only at CW will you find this incredible Brother HL-631 price. It's Exclusive!

- 300DPI SUPER-FAST PRINTING
- GENUINE BROTHER LASER
- USE WITH BOTH MACs & PCs
- WHY BUY AN INKJET??

CW RECOMMENDED

300DPI, BROTHER LASER PRINTING FOR THE PRICE OF AN INK-JET!!

WOW!

Lock up your daughters - he's done it again! CW just loves a deal and here is his latest. A superb brand name laser printer for less than £300!
And not just any old laser either. No, this quality unit is the award winning Brother HL-631 personal laser which has been designed to offer both the finest printing & the most affordable solution for your home & office. A firm favourite with our PC friends (it won the PC Magazines Technical Innovation of the Year), the Brother HL-631 stands out from the rest because of its speed, flexibility and print quality.
It's perfectly at home with a Mac or a PC - in fact it can be connected to both at the same time - and offers a straight paper path. No longer you have to suffer paper jams when printing on various media size, weight or style. A real boon to the office user.
Just check out these features:

SUPER-HIGH QUALITY PRINTING

- 300dpi printing with genuine Brother technology laser printing
- 6ppm
- Clear crisp print quality utilizing microfine toner.

VERSATILE PAPER HANDLING

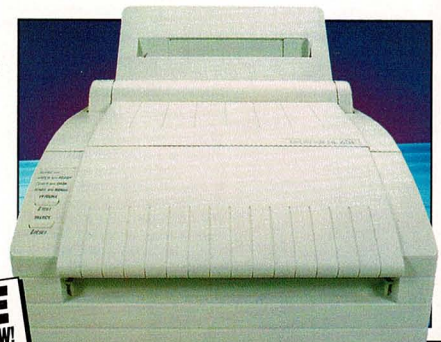
- Straight paper path with short travel distance allows a wide choice of media styles, sizes (8.5 x 14" to 2.75 x 5") & weight
- Flexible multi-purpose sheet-feeder which holds 200 A4/LTR sheets or 10 envelopes.
- Manual feed slot for labels, light card stock & OHP transparencies

COMPATIBILITY & CONNECTIVITY

- Macintosh QuickDraw via RS-232C serial interface
- Most PC printer emulations standard. (HP LaserJet IIP, 850 & IBM Proprinter XL) + auto emulation switching
- Auto interface switching between Mac and PC

ENVIRONMENTALLY FRIENDLY

- Auto Sleep mode for power saving.
- Economy printing mode for toner saving



SAVE ££'S @ CW!

£299 EX VAT £351 INC VAT

WHILE STOCKS LAST!! · ONE YEAR ON-SITE WARRANTY INCLUDED

BROTHER HL-631 LASER

HEWLETT PACKARD 6MP

NEW!

NEW HP POSTSCRIPT LASER!

The 8 page per minute engine and superb paper handling make this a CW recommendation for 1997. 3Mb of memory and LocalTalk plus PostScript level 2 compatibility.

- True 600 x 600dpi resolution
- Speedy 8ppm operation
- 3Mb RAM - expandable

£649 £763 INC VAT

APPLE COLOR LASERPRINTER

APPLE 12/660PS COLOR

NEW!

POSTSCRIPT COLOR LASER

30% faster than the 12/600 it replaces, this great cross-platform color laser offers superior quality color printing, Postscript level 2, 600dpi resolution and 12ppm!

- 600 x 600dpi with Photograde
- 16Mb RAM - exp to 40Mb
- Ethernet as standard

INCLUDES ON-SITE INSTALLATION!!

£4499 £5286 INC VAT

APPLE COLOR LASERPRINTER

GCC XL608 A3 LASER

CW RECOMMENDED

AFFORDABLE A3 LASER

The CW recommended GCC Technologies Elite XL608 offers edge-to-edge A3 Postscript laser printing at a great price!!

- 600 x 600dpi with Photograde
- Prints to A3, Ethernet option
- Postscript level 2
- 6Mb RAM exp to 64!

£2099 £2466 INC VAT

GCC ELITE XL608 A£ MONO LASER

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TOP CW VALUE | NEW 200MHZ MODEL | GREAT BUNDLES | BEST UK PRICES!! | SEE THEM TODAY!!

STYLEWRITER 1200

EXCLUSIVE THIS PRICE ONLY AT CW!!

APPLE INK-JET LESS THAN £120!!

Here's a genuine Apple Ink-Jet printer which offers laser-like quality at an unheard of price Designed to work specifically with your Macintosh, this printer takes up less space than most other desktop ink-jets and offers 720 x 360dpi resolution with the option of printing 2 or 4-up documents on a single page with enhanced watermark grayscale options. Supplies are now limited and once they're gone the offer will be unrepeatable!

- 720 x 360 dots per inch with superb edge smoothing
- Paper tray holds 100 sheets or 15 envelopes
- 3 ppm in black and white mode
- 64 Scalable True Type fonts included
- Grayshare printing allows network connectivity
- A CW exclusive - you can't buy better!

WHILE STOCKS LAST

£119 EX VAT £140 INC VAT

STYLEWRITER 1200

SCOOP PURCHASE!

GET ALL THIS..

ALL THIS AND MORE!!

WOW!

FREE @ CW
MONOTYPE FUN FONTS 1 & 2 + A REAM OF WHITE PAPER
FREE WITH EVERY PRINTER SHOWN ON THESE PAGES

COLOR STYLEWRITER 1500

BEST VALUE COLOR INK-JET PRINTER

The whizzy Apple Stylewriter 1500 is a low cost colour inkjet printer that offers near laser quality printing at 360 x 360 dpi! Change from Black cartridge to CMY cartridge for amazingly high quality color outputs! Its easy! Now less than £170!!

- 360 x 360 dpi colour/greyscale resolution
- Maximum 100 sheet paper tray
- 64 Truetype fonts included
- Compact/easy to store
- Ethernet & LocalTalk with ColorShare
- Easy to use and set-up
- Great quality & low price!

LIMITED STOCKS!

£199 EX VAT £234INC VAT

COLOR STYLEWRITER 1500

SAVE ££'S @ CW!

COLOR STYLEWRITER 2500

SUPERB APPLE QUALITY CMYK COLOR PRINTING

This economical and compact colour printer from Apple delivers crisp laser quality text, vibrant color and fast drying action due to water and fade resistant inks. CMY and Black cartridges both inside - no need to change!
This printer gets a CW best buy!

- 720 x 360 dpi resolution and up to 5ppm
- Maximum 100 sheet paper tray
- 64 Truetype fonts incl.
- Ethernet and LocalTalk with ColorShare
- Desktop design - internal power supply

£289 EX VAT £340 INC VAT

COLOR STYLEWRITER 2500

SAVE ££'S @ CW!

EPSON STYLUS COLOR 500

PHOTO-REAL QUALITY AT AN AFFORDABLE PRICE!

Just how good can the results from a color ink-jet printer be? Well with CW recommended Epson color printers it's just superb! The NEW Epson Stylus Color 500 features a unique Piezo print head and uses brilliant new inks to deliver 720dpi color on plain paper! Delivers photo-real color output on a wide variety of materials.

- A4, 720dpi color printing up to 4ppm
- Double density blacks for great text & superb greyscale graphics
- Photo-real color all the time
- **A CW BEST BUY at less than £200 it's an absolute STEAL!!**

£199 EX VAT £234 INC VAT

STYLUS COLOR 500

SCOOP PURCHASE!

SAVE ££'S @ CW!

A4 STYLUS PRO -- POSTSCRIPT OPTION

PROFESSIONAL CHOICE

720 x 720dpi piezo printhead with unique MicroDot™ ink delivery.

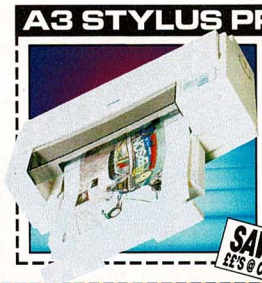
- PostScript Level 2 option
- MicroDot™ -no banding
- MicroWeave™ reinforces photo-real effect where appropriate
- 720 x 720dpi, A4, 3ppm

£320 £376 INC VAT

EPSON STYLUS PRO A4

SAVE ££'S @ CW!

A3 STYLUS PRO XL POSTSCRIPT OPTION



A3 LARGE FORMAT

Ideal for DPS, A3, color proofing and CAD/CAM applications.

- 720 x 720dpi, A3, max 3ppm
- MicroDot™ for quite superb text and graphics with no 'banding'
- Optional Ethernet
- Handles A4, A3, Super A3

£799 £939 INC VAT

EPSON STYLUS PRO XL

SAVE ££'S @ CW!

This is...

"For me this really is much to much - Just check out the price on the Nikon Scantouch!"

"Hey Buddy - The deal is yours!"

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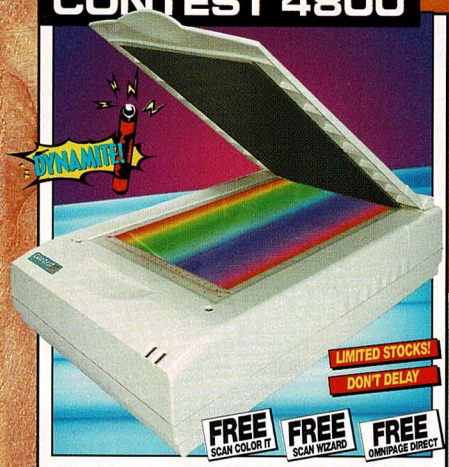
DESKTOP SCANNER | FLATBED SCANNER | LOW-COST | HIGH END | 300DPI - 4800DPI

CONTEST 4800



4800DPI, 24-BIT SCANNER
LESS THAN £170!!

At long last there is a user-friendly scanner that produces true-to-life professional scans in a flash and at an ultra-low cost.
The CW exclusive Contest 4800!!
This single pass scanner gives you a razor-sharp scan in no time and with the bundled Color It and OmniPage OCR software (on CD-ROM only) it's ready to become your most productive desktop tool. Just check the spec:

- Genuine 24-bit color scanning
- 8-bit greyscale scanning for black & white photos
- 300 x 600 optical resolution
- Large 342mm x 216mm scanning area
- 4800dpi x 4800dpi interpolated resolution
- Single-pass and ultra-rapid scanning
- FREE Color It, ScanWizard & OmniPage LE software

Note software only available on CD-ROM.

SAVE £££'s!

£169

CONTEST 4800 SCANNER

EX VAT £199 INC VAT

NIKON SCANTOUCH 110

WOW!

FREE..FREE..FREE..
✓ PHOTOSHOP PLUG-IN
✓ OMNIPAGE LE OCR SCANNING SOFTWARE

CW RECOMMENDED

SCOOP PURCHASE EXCLUSIVE CW PRICE

LIMITED STOCKS!

THE BEST VALUE A4 COL. SCANNER

Compact, mega-fast and offering superb quality - the Nikon Scantouch is a firm favourite with CW.
And at this price it's an absolute steal!
Use this great scanner for all your desktop publishing. Black and white photos, color photos and line art.
There's even an optional hood available for scanning negatives and transparencies.

- Genuine 24-bit color scanning (16.7million colors!) for color photos
- 8-bit greyscale scanning (256 greys) for black & white photos
- 300 x 600 optical resolution
- Large 216mm x 297mm scanning area
- 4800dpi x 4800dpi interpolated resolution
- Single-pass and ultra-rapid scanning
- FREE Nikon Scan plug-in software & OmniPage LE OCR software

FREE NIKON SCAN | FREE OMNIPAGE LE

SAVE ££'S @ CW!

£199

NIKON SCANTOUCH 110

EX VAT £234 INC VAT

VIDEO CAPTURE @ 'OL CW NOW!!

MIRO DC-20 BOARD

AFFORDABLE AND QUALITY
The Miro DC-20 PCI card offers superb QuickTime capture for a fraction of the cost of competing systems.
You simply must see this in action!
FREE Premier 4.2 included.
CW has the lowest UK price!!

CW RECOMMENDED

BEST

SAVE £££'s! PRICE IN THE UK

MEDIA 100 QX

ASTOUNDING QUALITY
Full Broadcast-ready video editing using QuickTime.
Superb quality and PCI-bus based, this video capture system directly controls Adobe Premier so it's ultra-easy to use.
You just can't get better than this.

£4495

SAVE £££'s! £5282 INC VAT

SCANMAKER E3

£219 £257 INC VAT
OMNIPAGE LE + SCAN WIZ

EPSON GTX-5000

£249 £293 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

EPSON GTX-8500

£399 £469 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

SCANMAKER E6

£349 £410 INC VAT
OMNIPAGE LE + SCAN WIZ

EPSON GTX-9500

£525 £617 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

UMAX VISTA S6E

£229 £269 INC VAT
GREAT VALUE 600DPI SCANNER

AGFA SNAPSCAN

£249 £410 INC VAT
AGFA SNAPSCAN SCANNER

STUDIOSTAR

£619 £727 INC VAT
AGFA STUDIOSTAR SCANNER

AGFA DUOSCAN

£2789 £3277 INC VAT
DUOSCAN 36-BIT SCANNER

NEW!

SCOOP PURCHASE EXCLUSIVE CW DEAL

SAVE £££'s!

BUY PHOTOSHOP v4 AND GET A FREE A4 COLOR SCANNER!

WOW!

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SCOOP PURCHASE

LOOKS GOOD!

MONITOR MADNESS!

'I just can't believe these prices - a GENUINE Sony Trinitron tube monitor for less than £950 - Impossible - but eerily true!

GOSH!

CW GIVES YOU THE BEST FOR LESS!!

Always known for sniffing out a great deal but the 'ol bloodhound has really surpassed himself this time. In a moment of monitor madness CW has managed to secure two of the best looking screens around at UNBELIEVABLE prices! But you had better hurry. At these incredible savings these monitors are selling like hot cakes. Order yours today!!

LIMITED STOCKS!

17" DIAMONDTRON

DYNAMITE!

- 17" Diamondtron™ display (16.2 inch viewable area)
- Maximum resolution of up to 1,600 x 1,200 non-interlaced
- Complete with cable and Mac adaptor
- Multi-scan technology
- Unlimited display colors
- 0.25mm Aperture grill pitch
- Vertical scan range 50-120Hz
  Horizontal scan range 24-82kHz
- On-screen management of display modes
- Weighs 22Kg

ONLY AT CW!!

£399
CW DIAMONDTRON 17" MONITOR
EX VAT £469 INC VAT

LIMITED STOCKS!

20" TRINITRON

DYNAMITE!

- Genuine Sony Trinitron tube
- 20" Trinitron™ display (18.5 inch viewable area)
- Maximum resolution of up to 1,280 x 1,024 @ 75Hz
- Complete with cable and Mac adaptor
- Multi-scan technology
- Unlimited display colors
- Mac adaptor included
- On-screen management of display modes

ONLY AT CW!!

£949
CW TRINITRON 20" MONITOR
EX VAT £1115 INC VAT

PCI GRAPHICS CARD

MAC PICASSO 520 4MB PCI GRAPHICS CARD

An accelerated PCI graphics card for your PCI bus equipped Mac OS system can be a real boon. Now there's no excuse. Here's a great super-speedy 64 bit PCI Graphics accelerator card offering 4MB of 50ns EDO VRAM and up to 1600 x 1200 resolution.

- 7" PCI card with 64-bit graphics accelerator chip from Cirrus Logic
- Mac DB15 and VGA monitor connectors
- 4Mb EDO VRAM. Up to 1600 x 1200 resolution
- Millions of colors at 1024 x 768

£199
4MB PCI GRAPHICS CARD
EX VAT £234 INC VAT

We have a wide range of essential PCI cards available at CW - For a kick off the speedier screen re-draws will save you time and the enhanced resolution and colors are essential for graphics and CAD. Call now for prices including CW's lowest cost PCI accelerated QuickDraw card.

ALL YOU EVER NEEDED TO KNOW ABOUT MONITORS

THE VIEWABLE AREA
When is a 15" screen not a 15" screen. When its viewable area could actually 13.3". For years screen manufactures have measured the size of the tube. However honest CW gives you the actual viewable area.

RESOLUTIONS & WYSIWYG
WYSIWYG - near 72dpi (What you see it what you get) means that what you see on screen matches the size of your actual document when it's printed. eg: select 100% view in Xpress and it will show a page at actual size. For WYSIWYG operation you need 832 x 624 pixels on a 17" monitor and 1024 x 768 pixels on a 20". However it's sometimes an advantage to forgo WYSIWYG in favour of the ability to view larger documents - in other words increase the resolution eg. 1024 x 768 pixels on a 17" monitor will display roughly an A3 spread.

MULTIPLE SCAN TECHNOLOGY
A monitor capable of multiple resolutions utilises multiple scan technology. The new Apple 17" and 20" monitors can switch resolutions on-the-fly.

DOT PITCH & SHARPNESS
Apart from the screen manufacture process the thing to look for is Dot Pitch (the distance between each group of red, blue and green phosphers that make up the smallest physical pixel possible. Generally the smaller the dot pitch the better the sharpness. A small dot pitch of 0.28mm provides a good clear image.

GLOSSARY OF TERMS
Convergence
How effectively the beams of red, green, blue hit their target. Adjustment can seriously affect the coloring of straight lines

Gray Linearity
Measurement of a monitors ability to show shades of grey. ie 0% white to 100% black if the monitors 3 guns operate differently the grays will have a color hue. eg reddish at 20% and greenish at 70%

Calibration
Technique for matching the colors you see on screen to the colors you get on a printed job

"I CALL IT AS I SEE IT".

"I CALL IT AS I SEE IT".

	CW 14 INCH	APPLE 14 MULT-SCAN	CW 15 INCH	APPLE 15 M.SCAN AV	SONY 15 SFII	CW 17 DIAMONDTRON	APPLE 1705	APPLE 1710	APPLE 1710AV	SONY 17 SFII	CW 20 TRINITRON	APPLE 20 MULT-SCAN	SONY 20 SFII
SIZE	14 inch diagonal	14 inch diagonal	15 inch diagonal	15 inch diagonal	15 inch diagonal	17 inch diagonal	17 inch diagonal	17 inch diagonal	17 inch diagonal	17 inch diagonal	20 inch diagonal	20 inch diagonal	20 inch diagonal
VIEWABLE AREA	13.2 inches	12.4 inches	13.78 inches	13.75 inches	13.9 inches	16.2 inches	15.8 inches	16.1 inches	16.1 inches	16.1 inches	18.5 inches	19.1 inches	19.1 inches
SPEAKERS	No	Yes - stereo	No	Yes - stereo	No	No	No	No	Yes	No	No	No	No
SPECIAL FEATURES	Complete with Mac adaptor On-site service	800 x 600 pixels @ 75Hz Energy Star	1024 x 768 pixels @ 75Hz Energy Star	In-built microphone 800 x 600 pixels	On-screen management controls	Up to 1600 x 1200 non-interlaced On-screen control	Up to 1024 X 768 pixels Energy Star	Up to 1280 X 1024pixels Energy Star	Up to 1280 X 1024 pixels In-built Mic	Up to 1024 x 768 On screen management	On-screen management Unlimited colors	Up to 1280 X 1024 pixels Energy Star	Up to 1280 X 1024 On-screen management
TUBE	14" CRT	Shadow Mask	FST	Shadow Mask	Sony Trinitron™	Diamondtron™	Shadow Mask	Trinitron™	Trinitron™	Sony Trinitron™	Sony Trinitron™	Trinitron™	Sony Trinitron™
PRICE	£149 (£175 inc)	£229 (£269 inc)	£219 (£257 inc)	£359 (422 inc)	£309 (£363 inc)	£399 (£469 inc)	£489 (£575 inc)	£679 (£798 inc)	£749 (£880 inc)	£499 (£586 inc)	£949 (£1115 inc)	£1299 (£1526 inc)	£1075 (£1263 inc)
	WOW!	YOU CAN'T BUY BETTER!	SAVE ££'s @ CW!!	YOU CAN'T BUY BETTER!	SAVE ££'s @ CW!!	SAVE ££'s @ CW!!	YOU CAN'T BUY BETTER!	SAVE ££'s @ CW!!	SAVE ££'s @ CW!!	SAVE ££'s @ CW!!	SAVE ££'s @ CW!!	YOU CAN'T BUY BETTER!	SAVE ££'s @ CW!!

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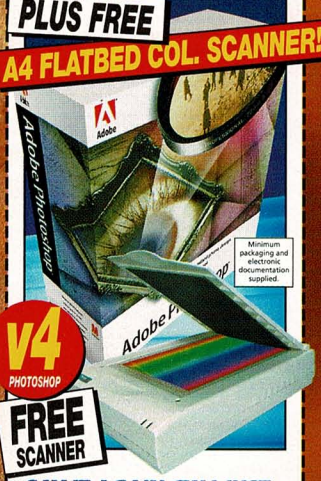
PHOTOSHOP 4

PLUS FREE A4 FLATBED COL. SCANNER!



V4 PHOTOSHOP

FREE SCANNER

SAY IT AGAIN CW I JUST CAN'T BELIEVE IT!

With this incredible Deal - CW gives you the best Adobe PhotoShop v4 deal in the land!

- **You buy the NEW Adobe PhotoShop version 4**
- **You get a FREE 24-bit 300dpi A4 color flatbed scanner.**

Whether you're re-touching high-res scans, designing textures and buttons for multimedia or creating artwork from scratch, Photoshop is the best there is. Easy to use and immensely powerful.
You just can't do without it.

Here's what's new in version 4...

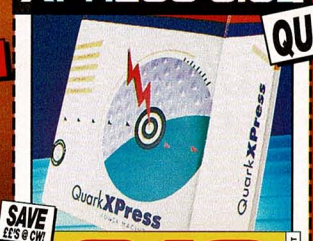
- Actions - a macro creator within Photoshop for repetitive tasks
- Adjustment layers - make modifications to your image without changing pixel information
- Free Transform - multiple transformation without loss of quality
- Guides and Grids - at last!!

£299 EX VAT £351 INC VAT
PHOTOSHOP + FREE A4 SCANNER!

SAVE £'S @ CW!!

XPRESS 3.32

QUARK



SAVE £'S @ CW!

£618 EX VAT £728 INC VAT
QUARK XPRESS 3.32

QUARK IMMEDIA

WOW!

Immedia gives you powerful multimedia & Web authoring tools from within Xpress! - No scripting - just easy multimedia layout!

REQUIRES XPRESS 3.32r

£669 £786 INC VAT
QUARK IMMEDIA XTENSION

IMMEDIA + XPRESS

This complete package gives you Quark Xpress - the best professional publishing package and the Immedia multimedia Xtension!

NOTHING ELSE TO BUY!

£995 £1169 INC VAT
IMMEDIA + XPRESS BUNDLE

PAGEMAKER 6.5

SAVE £'S @ CW!!

New version and the most complete design and layout package available for print and web publishing. CW recommended.

£369 £434 INC VAT
ADOBE PAGEMAKER 6.5

ILLUSTRATOR 6

V6.5 UPGRADE

New version offers superb control over all aspects of PostScript illustration. Exports GIFs so it's ideal for Web graphics.

SAVE £'S @ CW!!

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ADOBE ILLUSTRATOR 6.01

CW RECOMMENDED

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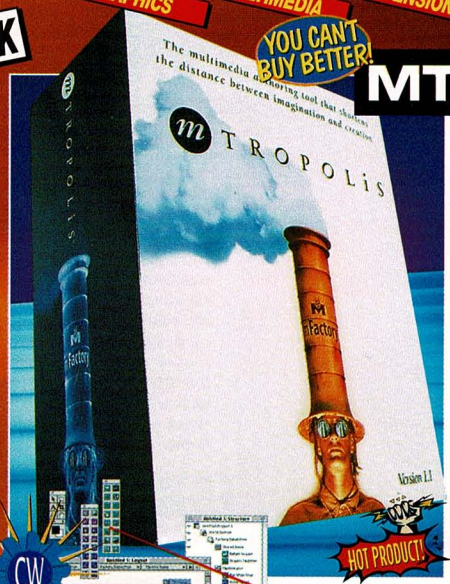

The multimedia authoring tool that shortens the distance between imagination and creation
mTROPOLIS
Version 1.1
HOT PRODUCT!

POWERFUL YET SO EASY

mTropolis is the revolutionary authoring tool which CW reckons will define a new standard for easy multimedia development. Through its object-oriented approach, this powerful application provides CW with amazing flexibility in the creation of his multimedia applications.
The intuitive, graphic authoring process allows even non-programmers to create remarkably compelling interactive experiences. And once a title is authored it can be played back on Mac, Windows and Internet platforms - without further purchase!

- Fully object orientated architecture for unequaled flexibility and reusability.
- Simple drag-and-drop world-building without volumes of complex coding
- High-performance multi-threaded engine for more responsive playback
- Open and extensible APIs eliminate boundaries to creative development
- Author once, then playback on Mac, Windows - even the Internet.

One to watch - it's gonna be HUGE!

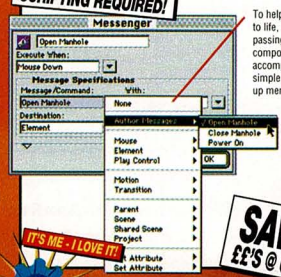
Complex behaviours can be assembled without coding, by simply dropping combinations of pre-built modifiers onto media objects.

A highly-visual WYSIWYG environment provides complete control over graphical layout, letting CW view elements as he constructs them.

CW RECOMMENDED

GOSH!

IMAGINE THAT - NO SCRIPTING REQUIRED!



To help bring your title to life, message passing between any component is accomplished through simple and clear pop-up menus.

IT'S ME - I LOVE IT!

CROSS PLATFORM

MacOS

Building a title for a specific platform is as simple as selecting "Build Title for..." from a mTropolis menu. mTropolis determines which objects are used in your title, binds together a platform-optimized set, performs media conversions, and produces a standalone application. Media placement is optimized for fast data streaming or for title size. Standalone, high-performance titles can currently be built for Macintosh, Power Macintosh, and Windows (including Windows 95) systems.

ONE PLAYER DOES IT ALL

£495 EX VAT £581 INC VAT
mTROPOLIS CROSSGRADE
Offer Open to all Director users

DIRECTOR CROSSGRADE

SAVE £'S @ CW!

SAVE £'S @ CW!!

MACROMEDIA

DIRECTOR MULTIMEDIA STUDIO

LOOKS GOOD!

CW RECOMMENDED

Everything you need for multimedia & Web design!!

- Director 5 - The best interactive media tool
- Extreme 3D - 3D illustration and animation - very fast
- SoundEdit 16 - Plus Deck II - Desktop digital audio tools
- xRES - The Photoshop alternative without the RAM req'd!

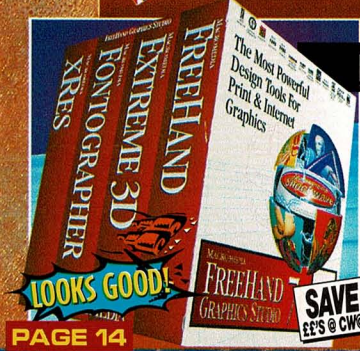
£849 EX VAT £998 INC VAT
MACROMEDIA DMS BUNDLE

SAVE £'S @ CW!!

NEW LOW PRICE!!

MACROMEDIA

FREEHAND GRAPHICS STUDIO



LOOKS GOOD!

Designers dream - 2D & 3D illustration, font & image editing

- Freehand 7 - 2D illustration package - very powerful
- Extreme 3D - 3D illustration and animation - very fast
- Fontographer - Font creation and editing.
- xRES - The Photoshop alternative without the RAM req'd!

£499 EX VAT £539 INC VAT
FREEHAND GRAPHICS STUDIO 7

SAVE £'S @ CW!!

NEW LOW PRICE!!

SAVE £'S @ CW!!

STREAMLINE

Converts TIFF line-art into editable bezier curves.

£95 £112 INC VAT
ADOBE STREAMLINE

DIMENSIONS

Bezier curve based 3D illustration & artwork mapping. Superb!!

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ADOBE DIMENSIONS

GALLERY FX 1.5

48 stunning Photoshop plug-ins. Turn scans into paintings & more!!

£99 £117 INC VAT
ADOBE GALLERY EFFECTS 1.5

SAVE £'S @ CW!!

POWER TOOLS

Kais Power Tools PhotoSHop plug-ins are essential. But THEM!

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KAI'S POWER TOOLS V3

VECTOR FX

Amazing plug-ins for Illustrator & Freehand. 3D text & everything!

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META TOOLS VECTOR EFFECTS

CONVOLVER

Imaginative set of Photoshop plug-ins. Innovative 'reward' system

£89 £105 INC VAT
META TOOLS CONVOLVER

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SAVE £'S @ CW!!

SHADOWCASTER

Soft shadows in Xpress! Create shadows for text, pictures etc.

£99 £117 INC VAT
ALP SHADOWCASTER XTENSION

QX TOOLS

Superb collection of Quark Xtensions. Multi-object scaling, toolbars etc.

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QX TOOLS FOR XPRESS

ACROBAT

The PDF file maker. Cross platform support. Great for Web.

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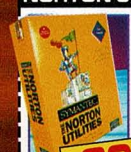

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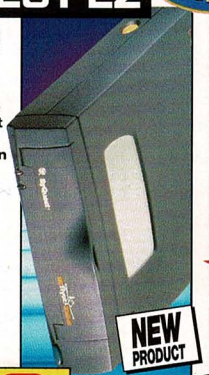

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My First Incredible, Amazing Dictionary Activity Pack

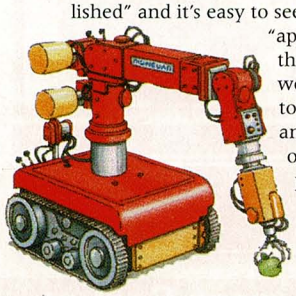
Picture the scene: you've got an award-winning CD-ROM, and lots of stickers, books and glue. What do you do? Repackage the CD-ROM with this bumper bundle of goodies, of course...

It never used to be like this, you know. Today's pixel-friendly sprogs can choose between mind-expanding edutainment and alien-splatting games for their amusement. Back in that dark, distant decade known as the '70s, it was a dog-eared copy of *Whizzer and Chips*, the curious delights of Play-Doh™ and, when provoked by a concerned parent, even the odd book.

Such pastoral delights can nowadays be replicated by any number of CD-ROMs but, while edutainment's cartoon-quality animation and none-more-wholesome characters can slyly coerce even the most stubborn of children into learning activities, the longing for said salad days remains. After all, who wants Ribena™ down the back of their shiny new PowerMac?

A solution? How about the best of both worlds? Take a much-praised children's multimedia title, make the box a bit bigger and then stuff it with stickers, activity books and enough Californian-style flash cards to placate even the most over-concerned of parents. Oh, and if the manufacturer of this box of delights can be an award-winning outfit such as Dorling Kindersley, then that would be just about perfect...

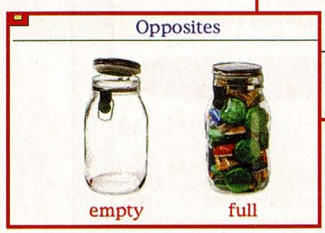
And indeed it is. Aimed at the three-to-seven year-old age range, *My First Incredible, Amazing Dictionary* has already been lauded by *The Guardian* as "one of the most imaginative titles ever published" and it's easy to see why. From "apple" to "zebra", there's over 1,000 words just waiting to be clicked on – and with the aid of an animated picture and a friendly British-accented voice, they're all clearly and concisely defined. To wash is "to clean yourself with soap and water", a robot is "a machine that can move and do some of the simple jobs that people can", while a yoghurt is "a thick, creamy food made from milk... often sweetened with sugar and flavoured with fruit". Along with objects, *Dictionary* wisely includes verbs, activities and even emotions – love is, rather sweetly, defined as "to like someone or something very much". Bless.

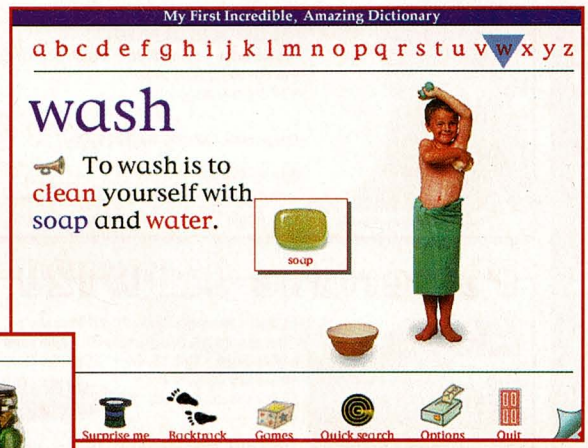


Yup, it's all there and it's all just a click away. Whether you're using the "Quick Search" short-cut to go straight to a word, any of the three simple word games, or just the "Back-track" option to look back on your journey through *Dictionary*, the alphabet remains at the top of the screen just aching to be dived into once again. And if that's too linear, *Dictionary* is diligently hyperlinked. Thus, if your child clicks on "soccer", cheering crowds appear; click on "goal" to get an animated penalty kick and click on "net" for some fish-snaring photography, and so on. The vocabulary is up-to-date – CD-ROM is included as "circle of plastic that stores sounds and pictures" – and the design is sumptuous, with both spelling and basic pattern recognition in mind. All of this makes *Dictionary* still the essential purchase it was back in 1994.

Yes, that's 1994. Now three years old, *Dictionary* hasn't received any change in content and, while it's hardly necessary for an introductory children's dictionary to be updated like the *Oxford English Dictionary*, it's still slightly disappointing to see laurels being rested upon.

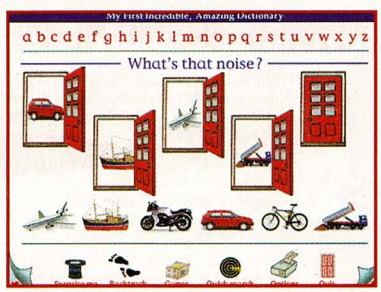
Still ,there's lots of extras in the pack now – all recent additions to the Dorling Kindersley range – and they just about make up for that. T*reasure Hunt Board Book* is a colourful introduction to the wider world, *Opposites* is a sticker book all about that fundamental concept, and the flash cards are simply beautiful – unsurprisingly excellent photography and still the staple of any pre–school education. With the generous helping of animal stickers thrown in, this bundle alone must be worth at least a tenner. In the value for money stakes, it's a great deal.




My First Incredible, Amazing Dictionary
a b c d e f g h i j k l m n o p q r s t u v w x y z
wash
To wash is to clean yourself with soap and water.
soap
Surprise me
Backtrack
Games
Quick search
Options
Quit

Alongside objects and activities, concepts such as "opposite" (left) are gently introduced to the inquisitive mind.

Persuading your child to go anywhere near a bar of soap might prove a little more difficult, of course.



Match the sound to the picture in the *What's That Noise?* match–'em–up game. Fun, fun, fun.

A cynic might suggest that DK has just packaged together what was gathering dust in the warehouse – and there *have* been opportunities missed, with the obvious interactivity between CD-ROM and these extra goodies never addressed by the activity pack (a simple explanatory guide would have been ideal). But the entire package is so drop-dead gorgeous in both content and design that such quibblings seem rather churlish. *My First Incredible, Amazing Dictionary* might be the final repackaging this material can take, but, unlike Play-Doh™, quality never goes out of style. **MIKE GOLDSMITH**

My First Incredible, Amazing Dictionary Activity Pack

Brilliant the first time around, and now, with these extra goodies, it seems destined to become a hit again.

MF rating 85%

Jurassic Larks

Bundled along with the flash cards and stickers here is the *Treasure Hunt Board Book:* find yourself groceries, globes and, inexplicably, even dinosaurs on your travels.

Discovery

Next in line for the DK "Activity Pack" treatment is *My First, Amazing World Explorer* – which will come crammed with jigsaws, posters and picture postcards. Oh, and a CD-ROM.

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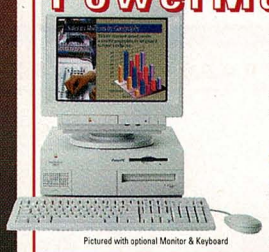

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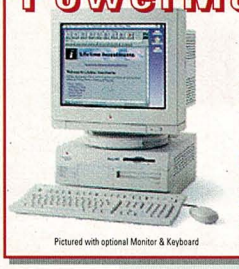

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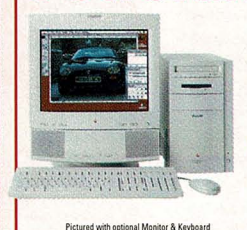

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- 12Mb RAM (upgradable to 64Mb) • 256k Level 2 cache
- 800Mb Hard Drive • 4x Speed CD ROM Drive
- Integral 14" monitor
- AppleDesign™ keyboard & Mouse

Performa 6320/120

Performa 6320/120 12/2000 only £829

- 120MHz PowerPC 603e Processor
- 256k Level 2 cache
- 12Mb RAM
- 2Gb Hard Drive
- 8x Speed CD ROM Drive
- AppleDesign™ keyboard & Mouse

Performa 6320/120 12/2000 with 15" AV monitor only £1149

Performa 5400/160 & 5400/180

- 160MHz or 180MHz PowerPC 603e Processor • Optional 256k Level 2 cache
- 16Mb RAM • 1.6Gb Hard Drive • 8x Speed CD ROM Drive
- Internal 28k8 voice/fax/modem • Video-In & TV Tuner (5400/180 only)
- PCI expansion slot • Integral 15" monitor
- AppleDesign™ keyboard & Mouse

StyleWriter 1500 only £109 extra

Performa 5400/160 16/1600 only £1449

Performa 5400/180 16/1600 with V-in-TV only £1699

Performa 6400 Home Office

- 180 MHz or 200MHz PowerPC 603e Processor
- Optional 256k Level 2 cache (standard on 6400/200)
- 16Mb RAM (expandable to 136Mb)
- 1.6Gb or 2.4Gb Hard Drive • 2 PCI expansion slots
- 8x Speed CD ROM Drive
- Internal 28k8 voice/fax/modem
- AppleDesign™ keyboard & Mouse

Performa 6400/180 16/1600 only £1349

Performa 6400/200 16/2400 only £1599

StyleWriter 2500 only £139 extra

Performa 6400/180 16/1600 with 15" AV monitor only £1599

Performa 6400/200 16/2400 with 15" AV monitor only £1859

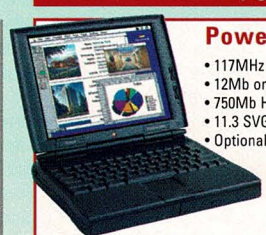
Performa 6400 Creative Studio

Performa 6400/200 24/2400 only £1999

- 200MHz PowerPC 603e Processor
- 256k Level 2 cache
- 24Mb RAM (expandable to 136Mb)
- 2.4Gb Hard Drive
- 8x Speed CD ROM Drive
- Internal 28k8 voice/fax/modem
- Video-In & TV Tuner
- Avid Cinema Video Editing Suite
- AppleDesign™ keyboard & Mouse

Performa 6400/200 24/2400 with 15" AV monitor only £2249

POWERBOOK HARDWARE



PowerBook 1400cs

only £1629

- 117MHz PowerPC 603e Processor
- 12Mb or 16Mb RAM (expandable to 64Mb)
- 750Mb Hard Drive
- 11.3 SVGA Dual Scan Display
- Optional Removeable 6x Speed CD ROM Drive

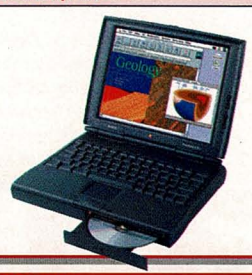
PowerBook 1400cs/117 16/750CD & Colour Stylewriter 2200 & Carry Case — only £2149

PowerBook 1400c

- 117MHz or 133MHz PowerPC 603e Processor
- 16Mb RAM (expandable to 64Mb)
- 1.1Gb Hard Drive
- 11.3 SVGA Active Matrix Display
- Removeable 6x Speed CD ROM Drive

PowerBook 1400c/117 16/1100 — only £2399

PowerBook 1400c/133 16/1100 — only £2699



POWERBOOK ACCESSORIES

PowerBook 1400 6x CD ROM	only £185	PowerBook 1400 Video Out	only £70
PowerBook 1400 Battery	only £85	PowerBook 1400 AC Adaptor	only £33

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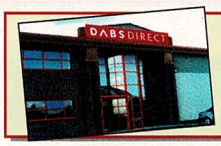

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UMAX

UMAX

Mac OS PowerPC

PULSAR 200MHz
Pictured with optional Monitor & Keyboard

UMAX APUS 2000/166MHz — £849

- 166MHz PowerPC 603e
- 1.2Gb EIDE Hard disk
- Built-in stereo sound
- MacOS 7.5.5
- 16Mb RAM (expandable to 272Mb - 2 DIMM slots)
- 8-speed SCSI CD-ROM
- 2 PCI slots (1 full length, 1 half length)

UMAX APUS 3000/200MHz — £1299

- 200MHz PowerPC 603e
- 2.1Gb EIDE Hard disk
- 8-speed SCSI CD-ROM
- 3 PCI slots (2 full length, 1 half length)
- 256K Level 2 cache socket (upgradable to 1Mb)
- 16Mb RAM (expandable to 272Mb - 2 DIMM slots)
- Built-in stereo sound SRS 3D surround sound
- MacOS 7.5.5

APUS 2000/166MHz
Pictured with optional Monitor & Keyboard

UMAX PULSAR 200MHz — £2595

- 200MHz PowerPC 604e
- 2 Gb fast SCSI hard disk
- 8-speed SCSI CD-ROM
- 6 PCI slots
- 512K Level 2 cache
- 16Mb RAM (expandable to 1.04Gb)
- 128-bit graphics accelerator with 4Mb VRAM
- MacOS 7.5.3

UMAX PULSAR 225MHz — £2995

- 225MHz PowerPC 604e
- 2 Gb fast SCSI hard disk
- 8-speed SCSI CD-ROM
- 6 PCI slots
- 512K Level 2 cache
- 16Mb RAM (expandable to 1.04Gb)
- 128-bit graphics accelerator with 4Mb VRAM
- MacOS 7.5.3

MEMORY

	72pin SIMM	168pin DIMM	168pin EDO DIMM
4Mb	12	-	-
8Mb	22	28	-
16Mb	45	48	109
32Mb	90	96	219
64Mb	-	192	-

	VRAM	Cache RAM
256k	13	75
512k	19	135
1Mb	55	-
2Mb	185	-

APPLE HANDHELDS

Newton Message Pad 120 v2	335		
Newton Message Pad 130	469		
Newton Message Pad 2000	Call		
Emate 300	Call		
1Mb Storage card	60	2Mb Storage card	110
4Mb Storage card	200	Fax Modem	80
Keyboard	78	Leather Carry case	40
Mains Adaptor	18	NICAD Battery Pack	16
Print Pack	45	Recharger & Mains	54

MONITORS

APPLE

MultiScan 14" AV	229	MultiScan 15"	220
MultiScan 15" AV	359	Applevision 1705	499
Applevision 1710	679	Applevision 1710AV	749
MultiScan II 20"	1299		

CTX

1565D 15"	195	1569MS 15"	255
1765CD 17"	339	1785XE 17"	455
1785XA 17" Diamontron	489	2085GM 20"	709
2185XE 21"	885	2185XA 21" Diamontron	979

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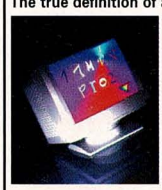
The true definition of a monitor



17MVX *Pro2*

- 17" FST Natural Colours CRT
- 0.21mm hor. mask pitch
- Upto 1280 x 1024 @ 75Hz
- Easy Menu on-screen display
- Vesa, Nutek & Energy Star power saving
- TCO 92, MPR II, TUV & CE compliance
- *FREE* Colorific colour matching software

- Made in UK
- 3 years RTB warranty, 1st year on-site replacement

Requires 8C-U (universal Mac Adaptoer) £12

£419

HITACHI

15MVX Value 15"	220	17MVX V2 17"	405
17MVX Pro2 17"	419	CM611ET 17"	539
CM2096 20"	755	CM2011 21"	799
CM2111 21"	920	CM2112 MET 21"	1385
CM2112 MET 21"Coated			1457

IIYAMA

MF 8515F 15"	249	MF 8617E 17"	479
MF 8617ES 17"	489	MT 9017E 17"	509
MF 8221T 21"	925	MT 9021E 21"	959

Extended Warranty

2 year OSM on 15"	15	3 year OSM on 17"	25
3 year OSM on 21"	35		

MITSUBISHI

DiamondPro 87TXM 17"	439
DiamondPro 91TXM 21"	999

NEC

Multisync XV14	212	Multisync XV15+	273
Multisync M500	379	Multisync XV17	549
Multisync M700	645	Multisync XE17	680
Multisync XP17	895	Multisync XE21	1139
Multisync XP21	1745		

NOKIA

ValueGraph 447V 17" & Speakers	399
ValueGraph 449E 17" Trinitron	509
ValueGraph 447Xi 17" Trinitron	599
ValueGraph 447Xav 17" & Speakers	609
MultiGraph 445Xi 21"	999

RADIUS

Intelicolor 20/f	1199	PrecisionView 21	1329
Pressview 17SR	1754	Pressview 21SR	2869

SONY

Multiscan 100 15"	255	CPD-15SF II 15"	296
CPD-17SF II 17"	498	GDM-17SE II T 17"	699
CPD-20SF II T 20"	1070	GDM-20SE II T 20"	1380
GDM-20SH T 20"	1575	Multiscan 200 21"	Call

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EXAMPLE

Apple® PowerMac 4400

£58.10 per month

SEE APPLE PANEL FOR SPECIFICATION

CASH PRICE (£1099 + VAT) £1291.32. DEPOSIT £129.32 (10%) FOLLOWED BY 24 EQUAL PAYMENTS OF £58.10, TOTAL CREDIT PRICE £1523.72. FLAT RATE 10% (APR 19.7%). DABS DIRECT PLC IS A LICENCED CREDIT BROKER - LICENCE NO. 416582

DAT STREAMERS

4/8Gb External	739	4/16Gb External	839

inc. cables, drivers & Retrospect Remote

ACCESSORIES

106key Extended Keyboard	39
Design Keyboard	58
Extended Keyboard	85
Adjustable Keyboard	132
Desktop II Mouse	35
Design Speakers II	46
PlainTalk Microphone	15
5200/6300 Video-in card	85
5200/6300 Video-in-TV card	215
5400/6400 Video-in card	65
5400/6400 Video-in-TV card	125
Presentation kit	199
QuickDraw 3D Accelerator	265
PowerPC 604 120Mhz upgrade	269
PowerPC 604 132Mhz upgrade	379
Pentium DOS Card PCI	599
586 DOS Card PCI	465
Adaptec 2940 WideSCSI Kit	185

SCSI HARD DISCS

	Internal	External
1Gb	184	214
2Gb	252	282
4Gb	579	609
9Gb	-	1338

CD-ROM DRIVES

D2

Eight Speed	175

CD RECORDING

D2

Dual Speed	355	Quad Speed	573

PHILIPS

CDD-2600	416

PLASMON

CDR4240 Dual Speed	472	CDR4400 Quad Speed	719

YAMAHA

CDE100 Quad Speed	528		

All include cables, software and 1 disk

REMOVABLE DRIVES

IOMEGA

Jaz 1Gb Ext SCSI	305		

MAGNETO OPTICAL

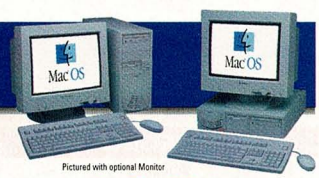
230Mb	294	640Mb	419
2.6Gb	1059		

SYQUEST

270Mb	225	540Mb	249
EZ Flyer 230Mb	175	SyJet 1.3Gb	344

All inc cable, software & 1 cartridge

StarMax™



Pictured with optional Monitor

StarMax 3000 Systems

	StarMax 3160 Desktop	StarMax 3160 Mini Tower	StarMax 3200 Desktop	StarMax 3200 Mini Tower
Processor	160MHz PowerPC 604e	160MHz PowerPC 604e	200MHz PowerPC 604e	200MHz PowerPC 604e
Memory	16Mb upgradable to 160MB	32Mb upgradable to 160MB	16Mb upgradable to 160MB	32Mb upgradable to 160MB
VRAM	1Mb upgradable to 4Mb	1Mb upgradable to 4Mb	1Mb upgradable to 4Mb	1Mb upgradable to 4Mb
Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb
PCI Slots	3	5	3	5
Drive Bays	2 External, 1 Internal	3 External, 2 Internal	2 External, 1 Internal	3 External, 2 Internal
Price	**£1099**	**£1349**	**£1399**	**£1649**

StarMax 4000 Systems

	StarMax 4160 Desktop	StarMax 4160 Mini Tower	StarMax 4200 Desktop	StarMax 4200 Mini Tower
Processor	160MHz PowerPC 604e	160MHz PowerPC 604e	200MHz PowerPC 604e	200MHz PowerPC 604e
Memory	16Mb upgradable to 160MB	32Mb upgradable to 160MB	16Mb upgradable to 160MB	32Mb upgradable to 160MB
VRAM	2Mb upgradable to 4Mb	2Mb upgradable to 4Mb	2Mb upgradable to 4Mb	2Mb upgradable to 4Mb
Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb
PCI Slots	3	5	3	5
Drive Bays	2 External, 1 Internal	3 External, 2 Internal	2 External, 1 Internal	3 External, 2 Internal
Price	**£2099**	**£2299**	**£2399**	**£2599**

All models include: 256k Level 2 Cache, Internal 1.44Mb SuperDrive, Internal 8x CD-ROM Drive, Stereo 16-Bit Sound I/O, Keyboard & Mouse, Five-Year (1st year on-site) Manufacturer's Warranty.

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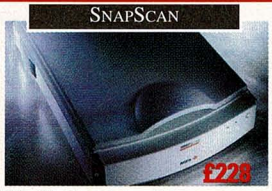
SCANNERS

SnapScan



- 300 x 600 dpi - optical resolution
- Outstanding image and text capture within seconds

DuoScan

- True 1000 x 2000 dpi - optical resolution
- 4000 ppi by interpolation
- Exclusive dual scanning bed design for increased accuracy and productivity
- 36-bit scanning of up to legal size
- Includes full Adobe Photoshop™ 3.0, Agfa FotoTune™ and FotoFlavor™

SnapScan	£228	StudioScan IIsi Lite	£379
StudioStar	£540	StudioScan IIsi Full	£445
IIsi Tranny unit	£269	Arcus II & Tranny	£1310
DuoScan	£2695		

AGFA The complete picture.

APPLE

Colour OneScanner 600/27	325
Colour OneScanner 1200/30	489

EPSON GTx-9500

FEATURES

- 4800 dpi and 36 bits per pixel in colour
- SCSI interface
- Advanced scanning options - TET, batch, page frame and negative film scanning
- Optional transparency unit and document feeder
- 1 year RTB warranty

£520

GTx 5000	£244	GTx 8500	£401
GTi 8500	£510	GTi 9500	£630
Document Feeder	£319		

HEWLETT PACKARD

Scanjet 4s	115	Scanjet 4p	289
Scanjet 4c	545	Scanjet 4c Graph/Pro	645

MICROTEK

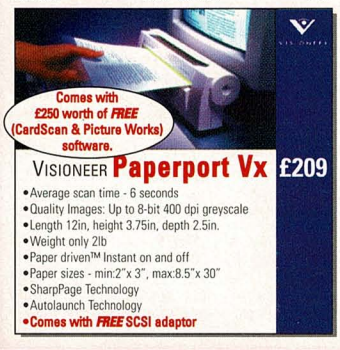
Scanmaker E3	219	Transparency Unit	275
Scanmaker E6	339	35T Plus	599
Scanmaker III	850	Scanmaker III/Trany	1095
Photoshop LE	30	Photoshop Full	130

NIKON

ScanTouch 110	169	ScanTouch 210 LE	599
ScanTouch 110 LE	259	ScanTouch 210 FULL	785
CoolScan II Int	719	CoolScan II Ext	669
CoolScan II	915	Super CoolScan	1329

SHARP

JX-250	335	JX-330	710



VISIONEER **Paperport Vx** **£209**

- Average scan time - 6 seconds
- Quality Images: Up to 8-bit 400 dpi greyscale
- Length 12in, height 3.75in, depth 2.5in.
- Weight only 2lb
- Paper driven™ Instant on and off
- Paper sizes - min:2"x 3", max:8.5"x 30"
- SharpPage Technology
- Autolaunch Technology
- **Comes with FREE SCSI adaptor**

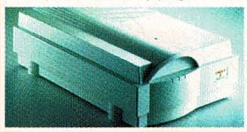
UMAX SCANNERS

TRANSPARENCY ADAPTER & DOCUMENT FEEDER AVAILABLE FOR ALL SCANNERS

Vista-S6E

- 24bit/16.7m colour scanning
- 300x600dpi optical resolution
- 4800x4800 max res. thru Ultra View technology
- Single Pass, RGB filter
- Photoshop LE available - £30
- VistaScan Photoshop plug-ins

£199



SuperVista-S12 **£399**

- 600x1200dpi optical resolution
- Analog Gamma Design for better image quality
- Max. resolution: 9600x9600 dpi
- Bundled with VistaScan

Powerlook II Pro **£1599**

- 36 bit fast colour scanning
- 600x1200dpi optical resolution
- Transparency adaptor
- 5000-pixel Single-pass, CCD
- Full version Photoshop 4.0

Award winning Magicscan Software

Model	Plug-in	LE	Plus	Pro
Vista S6E	£199	£229		£649
SuperVista S12	£399	£429	£499	£829
S12 PhotoPerfect		£529	£599	£929
Powerlook II	£1499			£1599
Powerlook 2000				£2995
Mirage D-16L A3				£5495

12 month replacement warranty on all Umax scanners
Plug-in = VistaScan Photoshop Plug-ins
LE = Photoshop LE, Plus = Full Photoshop
Pro = Full Photoshop & Transparency Adaptor

CAMERAS

APPLE

QuickTake 150	399		

CASIO

QV-10A	275	QV-100A	409

CONNECTIX

QuickCam Mono	49	QuickCam Colour	139

FUJI

DS-7	439		

KODAK

DC20	153	DC25	195
DC40	367	DC50	549

NIKON

Coolpix 100	329		

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WACOM

ArtPad II + Dabbler	109	A5 UltraPad	239
A5 U/Pad+ xRes	335	A4 UltraPad	329
A4 U/Pad+ xRes	439	A3 UltraPad	525
A3 Electrostatic	599	A2 UltraPad	1299

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MIRO

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NUMBER 9

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RADIUS

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RADIUS PCI

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ThunderCol 30/1600	1349	ThunderCol 30/1920	1029
Thunder 3D	2399		

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APPLE

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Duo Express Modem	220
Performa Personal Comms kit Modem 14K4	109
Performa Personal Comms kit Modem 28K8	175

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Communicard 28.8 PCMCIA	325
Communicard RJ45 Ethernet + 14.4 PCMCIA	295
Communicard RJ45 Ethernet + 28.8 PCMCIA	405

GLOBAL VILLAGE

Teleport Platinum 28k8	95
Teleport Platinum 33k6 Internet	117
Powerport Gold PCMCIA	132
Powerport Platinum PB150/180	225
Powerport Platinum PCMCIA	325
Powerport Platinum Pro PCMCIA	429

SUPRA

Express 36K6 V34+	135

Hayes™

ACCURA 336 Message Modem

Voice/Data/Fax Communication for Macintosh

£124

Also available

ACCURA 336 Data/Fax Modem £115

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3400 Pro 28.8 Data Fax Modem

- 28.8 kbps data/fax modem
- Worldwide Compaitbiblty
- Easy installation
- User Manual Included
- 5 years warranty
- Internet Software
- Telephone Support
- Cables Included

£99

Sportster 28.8 Mac & Fax £128
Sportster X-Jack PCMCIA £108

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CommsSlot UTP/BNC	55	CommsSlot AUI	55

ASANTE

UTP Transceiver	35	NuBus UTP Card	79
BNC Transceiver	38	NuBus BNC Card	85
UTP+BNC Transceiver	65	NuBus UTP+BNC Card	99
PCMCIA UTP	120	PCMCIA BNC+UTP	145
Micro SCSI + UTP PowerBook			155
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AsantePrint Print Server			195

ASANTE HUBS

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Plug & Play 12port + AUI + BNC	225
Plug & Play 24port + AUI	345

ASANTE FAST

AsanteFast 10/100 PCI Card	145
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DAYNA

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APPLE

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Col StyleWriter 2500	289		

CANON

BJC-4550	273

EPSON

Stylus 500	186	Stylus 600	218
Stylus Pro A4	292	Stylus 800	299
Stylus Pro XL+ A3	785	Postscript Upgrade	160

FARGO

Fargo Fotofun	349	Primera Pro	1299

HEWLETT PACKARD

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DeskWriter 340C+ASF	189	DeskWriter 660C	179
Deskjet 870Cxi	299	DeskJet 1600CM	1207

LASERS

APPLE

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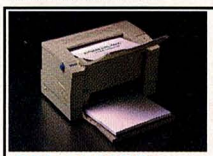
L/W 16/600PS	1399	L/W 16/600PS & FAX	1410
L/W Col 12/660PS	4499		

HEWLETT PACKARD

LaserJet 6MP	552	LaserJet 5M	1102
LaserJet 4MV	2009	LaserJet 5SiMX	2649
Colour LaserJet 5M	4999		



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- 600 x 600dpi
- 6ppm

EPL-5500PS **£655**

GCC Elite XL 616

- 600 x 600 dpi Edge to Edge
- *NEW* 50MHz RISC processor
- 16 ppm
- Halftone enhancement (AccuGray™)
- Ethernet as standard
- 8Mb RAM (expandable to 64Mb with 72 pin SIMMS)
- Mac OS, Windows 3.1, 3.11, 95, NT Netware Unix

£2499

GCC Elite XL 608

- 600 x 600 dpi Edge to Edge
- 25MHz RISC processor
- 8 ppm
- Halftone enhancement (AccuGray™)
- Ethernet as standard
- 6Mb RAM (expandable to 64Mb with 72 pin SIMMS)
- Mac OS, Windows 3.1, 3.11, 95, NT Netware Unix

£1845

GCC Elite 600 A4	**£925**
GCC Elite XL 808 A3	**£2799**
GCC Elite XL 1208 A3	**£3395**
GCC Elite XL 1208	**£3899**

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DISCS

	10	100	250
1.44Mb DSHD	.50	.40	.35
650Mb CD Recordable	7.00	6.00	5.00

DATA CARTRIDGES

2Gb/4Gb 90m DAT	8	4Gb/16Gb 120m DAT	15

MO DISCS

128Mb	8	230Mb	9

NOMAI SYQUEST CARTRIDGES

44Mb	22	88Mb	23
200Mb	35		

SYQUEST ORIGINAL CARTRIDGES

44Mb	25	88Mb	28
135Mb	13	200Mb	39
270Mb	34		

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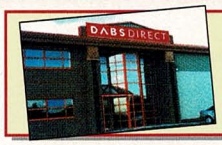

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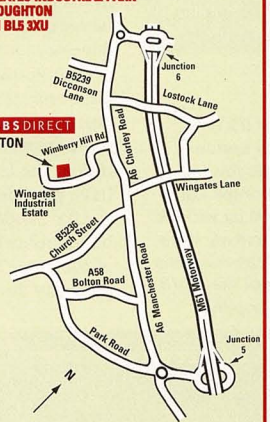

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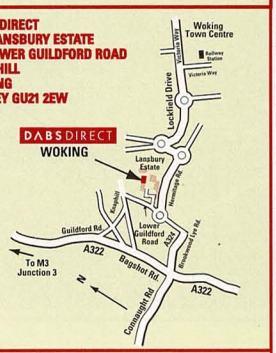

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Caesar II

Here's your chance to build your very own Roman city. Karen Levell wonders where to locate the water supply, and discovers what the local council is always moaning about...

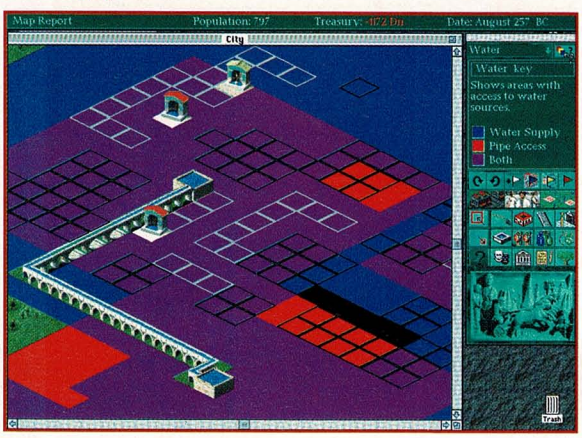
It's A-live!

Caesar II uses "artificial life" algorithms to simulate the desires of your population. For more information on "A-life" and how it will affect future games, see the feature in MacFORMAT 43. If you missed that issue, see page 144.

Friends, Romans, countrymen, lend me your ears. *Caesar* has sired an heir, and its name is SimCiticus. Okay, the game's actually called *Caesar II*, but this is a next-generation *SimCity* with togas. And the really good news is that it's every bit as tricky as its forerunner.

The idea is simple: build a huge empire, turn a profit and make your capital city a nice place for your populace to live in. Of course, as any Sim fan knows, it's never quite that easy. Growth and development don't come cheap – and even if you've got the money, achieving your ends is never easy, especially when you're facing a civil uprising caused by soaring crime rates or general dissatisfaction at the level of public services you have provided for your people.

Like *SimCity 2000*, this is a game for buildaholics and, it has to be said, much of the game's appeal lies in watching your city develop. As you add more structures, the local land values increase and your city evolves. Houses grow into palaces, markets increase their trade, and the streets become full of happy figures going about their daily business.



***Caesar II's* neat overlay system enables you to see which areas are covered by various city services. Here we're checking the status of the city's water supply.**

Unlike *SimCity*, *Caesar II* enables you to control the land that surrounds your city. This means dealing with many rampaging barbarians intent on trashing your shipyard. Station troops in your province's forts to protect your land.

Important events are announced using rendered animations. Unfortunately, the quality of the animation here is poor compared to the excellent graphics used throughout the rest of the game.

Of course, it's not all about altruism and aesthetics and not everything you do has a positive effect. For instance, each home has to have access to a local market, but since markets create noise and reduce land values, you don't want them too close to your residential areas. Then, to make matters worse, the markets need to be close to factories and these factories need a local workforce. Unfortunately, nobody who works in them wants to actually live near them, so you end up with a slum area that will never generate money but will still demand its share of local facilities.

To satisfy demands such as these, you will need to make frequent visits to the Forum – a series of screens where you set levels of tax, military spending and your labour forces. The Forum also gives you financial forecasts for the coming year, and enables you to review your personal savings, which you may take from city to city as you progress through the game.

There are other challenges too. As your city develops and your population grows, the strains on existing services reach a critical point. Of course, by the time this happens there's usually no space, or money, left to build new facilities. Then there's riots to quell, fires to stamp out and thieves to catch.

So far, so *SimCity*. There are differences though. *Caesar II* doesn't just give you a city to look after – it gives you a small country and all the problems that go with it. You can set up quarries and farms, shipyards and trading posts, all of which are vital to your city's industry. You'll also need roads to connect your towns and farms to the capital city.

It's not all happy meadows and morris dancing, though. Some of the natives have yet to succumb to your rule, and you also face threats from beyond your borders. Hostile hordes of barbarians regularly stomp across your frontiers, intent on ending your dreams of glory. And that's not to mention your all-seeing Emperor. He won't be happy if you lose your city to invading armies, so you need to ensure that you have adequate defences. Cue big forts, legions in leather and a mighty clash of swords.

This aspect of the game isn't a case of an off-screen statistical battle – you direct your battles personally. Once the opposing forces meet on the Province screen, you are taken to the battle screen where you see the units that make up the two armies. From there you click on one of your units to activate it, and then select an appropriate order from the tool bar. If you win the battle, your remaining troops become stronger; if you lose, the enemy continues its march.

This battle scenario is a great idea and a good addition to the formula, but *Caesar II* doesn't carry it far enough. You only ever get four types of units – heavy infantry, light infantry, slingers and auxiliaries. Furthermore, there are only four different troop formations – line, column, tortoise and pursue. There's no terrain and no magic. And while the battle is carried out in real time, the stop-start method of issuing orders destroys the sense of urgency. With more variety and tactical involvement, the battle section could have been a truly unique and gripping part of the game. As it is, it's little more than a pretty interlude.

You can get help at any stage in the game from your personal advisors in the Forum. This is also the place to go when you want to alter any aspect of your budget.

Still, if you do get bored with fighting your own battles, you can always let the computer do it for you. After all, as every buildaholic knows, the real fun in these games lies in building a successful city. And *Caesar II* has the city formula spot on. Pin-sharp graphics give the game a genuine aesthetic appeal, and the sound effects are similarly crisp with school bells, barking dogs, and the hubbub of

voices all adding to the sense of reality. Best of all, though, it has the same system of checks and balances as its forerunner, with every action having both a local and a global impact. There's no such thing as a simple level, and no two games are ever the same. So, like the mighty Roman Empire, this game looks set to last a very long time. **KAREN LEVELL**

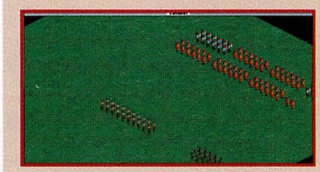
Caesar II

An excellent, finely balanced *SimCity* style build-'em-up – absorbing and beautiful. The battles are comparatively limited, though.

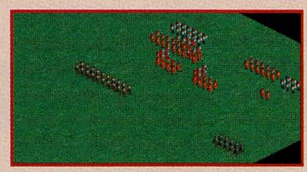
Graphics	**89%**
Sound	**90%**
Gameplay	**82%**

MF rating 85%

Big swords and leather skirts



The best tactic in any battle is to ensure you outnumber the enemy. Luckily, you deploy and control troops using a gloriously intuitive interface just like that in the main game, where you click on the structure you want to build and place it in the main window.



Don't be hasty – let the enemy make the first move. Here it's split its forces in an attempt to flank our line on the left. Such tactics demand the deployment of a column to our left to engage the enemy troops before they can get behind us.

With a limited choice of troops and tactics, the battle on the left is soon all but over. There is, however, fresh trouble on the right as enemy reinforcements join the fray. We need to reinforce too, if we are to avoid sustaining heavy casualties.

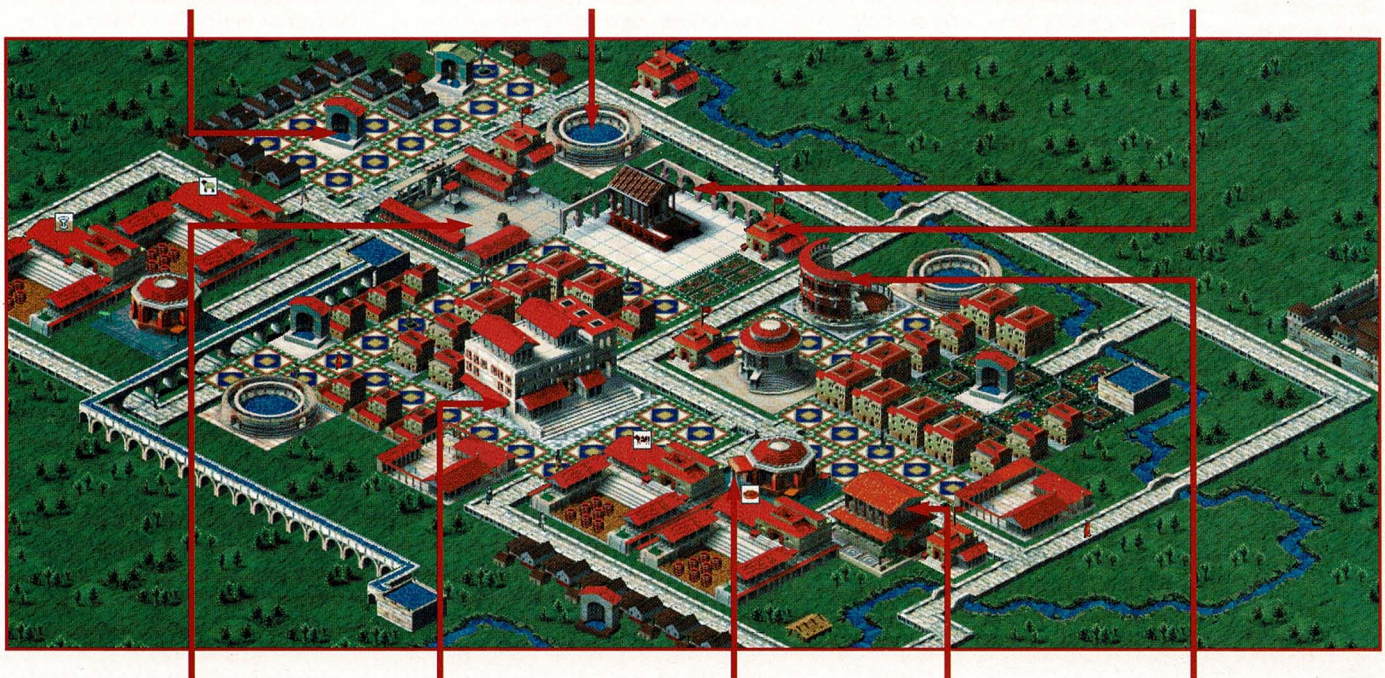
Your guide to ancient Rome

As your city develops, your houses and other structures will change according to their environment. The level of development – and therefore the level of tax you can expect – is measured in terms of land value. This is affected by a great many factors. For instance, a house must be close to a forum, bath house, market, school and entertainment complex if it's going to develop to a reasonable standard. You also need to provide city-wide services, such as hospitals and barracks.

WATER SUPPLY
Here we have a fountain connected to the underground pipework. People can also draw water from the river or from wells, but this is considered primitive and will severely limit land values in the area.

BATH HOUSE
Romans are very clean and need bath houses. These should also be connected to the city's water pipes. Again, a bath house without access to a constant supply of water will never develop properly.

TEMPLES & SECURITY
Temples double as bank vaults for your cash reserves, so be sure to provide for security. Build barracks and praefectures, or fires and riots will go unchecked and you'll lose most of your dinarii to villains.



FORUM
A Forum has two functions – as a meeting place for the people and as a base for your tax collectors. All revenue is collected door-to-door, but if you don't have enough Forums in the right places, you risk it going uncollected.

MARKET & FACTORIES
Markets and factories are essential if you are going to convert your province's raw materials into solid denarii. Businesses are subject to industry tax and one good one can often provide as much revenue as all your houses put together.

SCHOOLS
Schools come in two types. Grammaticus (primary) have a small sphere of influence, so place them close to the houses they serve. Rhetor (senior) schools are bigger and cover a wider area. Education is, naturally, vital to your city's development.

HOSPITAL
Without hospitals, disease takes hold of the city. Unlike most other structures, however, a hospital doesn't have to be near other buildings to offer cover.

ENTERTAINMENT
The more shows and spectacles on offer, the happier your Romans will be. Here we have a theatre, but other structures include arenas and circuses.

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MAC	PowerMac only	**POWERMAC**	**Processor:** any • **RAM:** 7Mb	**REQUIRES**	**System:** 7.5 • **HD space:** 20Mb • **Screen:** 640 x 480 • **Colours:** 256 • 2x speed CD drive		

Close Combat

The wargame for the '90s is here. Using artificially intelligent soldiers, you'll need to think about morale and tactics. Derek Smith attempts avoid trench foot...

Virtual reality? Like all fads, it's had its time, even before it was truly achieved. Now people are starting to look towards artificial intelligence (AI) for their next kick – as we illustrated in the cover feature of MACFORMAT 43. And *Close Combat* reckons it has it.

Close Combat is set at the time of the Normandy landings in June and July of 1944. Allied troops landed on the French beaches and ferociously fought their way inland across fields and hedgerows. They crossed the River Aure and continued to Saint Lô, a decisive victory, which is where this game also ends.

There are 39 scenarios, depicting each stage of the combat. They aim to be historically and geographically accurate, with buildings and bridges in approximately the correct places. The general countryside is dominated by bocages – ancient overgrown French hedgerows – which proved to make for ideal ambush country. It's across these territories that you must advance your troops in an effort to emulate reality and achieve objectives like taking a bridge.

At the start, you'll want to play these scenarios individually while you find your feet (and possibly other limbs). You can choose a difficulty setting from simple to Schwarzenegger, which means this game will provide a challenge whether you're a novice or an expert.

Once you are confident, you can play a full campaign, battling each scenario in chronological order. If you perform particularly well in a scenario, you can skip ahead – but play badly and it means replaying the same one, or even retreating to a previous position. These delays are important, because victory comes not from taking Saint Lô, which is fairly inevitable, but doing it within the 43 days that the battle took in reality.

An excellent feature is the choice of which of the two sides to play, Germans or Americans. (Unfortunately, the historical accuracy doesn't extend to attributing much importance to any other Allied nation. Still, this is an American product, so they can call the tune – or write the history.) Playing the Germans provides a surprisingly different game, requiring contrasting tactics. Here, you have less equipment and troops, but better positions and defences. Winning a scenario doesn't entail forcing back the Americans, but merely holding your line and defending your dug-in positions. To win, you must delay the taking of Saint Lô for more than the requisite 43 days.

The game is played from an overhead view on a map approximately three times the width and height of a 17-inch screen. An excellent feature is the game's readiness to use larger monitors to the full. In other words, the bigger the monitor, the bigger the play area. Although you can play on a 640 x 480 screen (14-inch), it's much better at 832 x 624 (17-inch), and a joy at 1,024 x 768 (20-inch).

At the start of a scenario you can position your units, typically about 15, anywhere behind your lines. The majority of these units will be foot troops, but you can also make use of armoured vehicles, mortar teams, bazookas, artillery, heavy machine guns and snipers.

The exact make-up of units will change every time you play, although there will be tendencies toward particular setups. For instance, you'll have fewer heavy tanks in early scenarios because they landed after the troops.

Receiving random units is important because it can substantially alter your tactics, making for a different game each time. For instance, if you have several mortar teams, you might use them to destroy enemy artillery so that you can then advance your tanks. With no mortar teams you might deploy your troops in a flanking movement to attack the artillery from both sides. It's this degree of realism and flexibility that makes for an absorbing game.

Kill a friend

The network option means that you and a friend (or enemy!) can play head-to-head over a local network or modem.

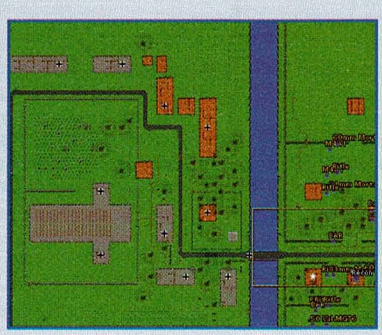
Here's what you can expect to see when you're playing – so vault those hedgerows and shoot a few people for good measure.

On your marks

Once you are happy with your troop positioning, you click the **Begin** button. You now enter real-time play, although you can alter the speed to slow things down at a hectic start, or speed things up at a stalemate ending. Pressing the mouse pointer on any unit produces a pop-up menu, from which you can select actions such as **Move**, **Fire**, **Defend** or **Hide**. With direction commands like **Move**, you then click on the location where you want your units to go. This is simple, intuitive – and it works.

Your troops are represented as individuals – although you can give commands only to whole units, typically consisting of five men. Tanks and other armoured

He who dares wins...



1 That's the river Aure, and unless you want your troops to get wet feet, you're going to have to take it in one go. So first, position your troops.

2 Before you can consider an attack, you'll need to destroy a major artillery gun. Concentrated mortar fire and a lucky shot should knock it out.

3 Next, lay down a smoke screen in front of the enemy stronghold. Then, under this artificial cover, move your men forward to the wall.

vehicles are commanded individually. This means that the scale of the battles is relatively small, perhaps a grand total of 50 men and four tanks. It's not a game of grand tactical moves involving battalions of men, but then that's why it's called *Close Combat*.

The possible offensive tactics are endless, but charging at the enemy yelling "Come and have a go if you think you're hard enough" usually results in a disappointing outcome. Carefully advancing under covering fire and seeking strategic defensive positions brings better results. War has often been compared to chess and – providing you armed the bishops and rooks with automatic weapons – you can see the parallel in this game.

Artificial intelligence

The authors of the game have invested a lot of the development time in creating intelligent troops. They claim that the digital sprites will behave like real soldiers, reacting realistically in whatever situation they find themselves.

Now, no one in the MACFORMAT office ever took part in World War II, or any other war for that matter, so our estimation of the realism is based on common sense and lots of Richard Attenborough films. But within those limitations, we have to say we were very impressed.

At the simplest level, if you order a troop of American soldiers to attack a German machine gun post, they dutifully leap over the wall and advance. When they come under fire, they hit the deck and crawl. If the German bombardment continues, they turn around and try to make it back to safety. No degree of encouragement from you is going to change their minds. If they do make it back, they will be psychologically affected, making them less likely to carry out your orders efficiently, unless you first rest them for a while.

In a head-to-head fight, German tanks will almost always beat the inferior American tanks. Your only chance of survival is to surprise them and get a shot at their more vulnerable rear. All's fair in war, you know.

At the end of a game you can take a detailed look at the performance and state of your units

The tactical solution here for the Americans is to give covering fire, especially from two different angles. This pins down enemy machine guns, giving your troops the opportunity to advance and destroy emplacements at close range.

Enemy troops also act intelligently. For instance, German gunners here might hold fire until your advancing troops are half-way across the field, thereby catching them in the open and making their retreat as difficult as possible.

There's plenty of detailed landscape, and your troops interact with their environment well. For example, when crossing an open space, they instinctively make use of natural cover. This might involve slowly following a river bank for part of the journey before dashing for a crater, then crawling through bushes the rest of the way.

As we've noted, troops are represented individually, so although a command applies to a whole unit, the fate of the soldiers is specific to each. For instance, one soldier may be injured, while another panics under fire and a third goes berserk and charges wildly at the enemy.

The state of a soldier's mind is constantly monitored and is affected by many factors such as the fire they are coming under, your leadership skills, previous success and whether they have tank support. Don't send an already scared unit out on a dangerous assault, because they'll crumble and let you down. All of these factors do genuinely make the soldiers act in a very believable way, and I think the boast of artificial intelligence is justified.

Original news video footage from the time adds greatly to the atmosphere. Isn't that Grandad up there?

The manual is very detailed, although it does read as if it's been written by the same Microsoft team that writes the business manuals – it's very formal and efficient, but with little humour or life. There's a detailed section on the real history of those 43 days, which helps you understand some of the scenarios and definitely adds to the atmosphere. Another section acts as a technical manual for the weaponry, helping you use them to their best.

Close Combat's good graphics, intense gameplay and absorbing tactics make for a compelling game. The only reason it doesn't achieve a Classic Award is that we managed to play the whole game in a week. Extra fictional scenarios, or a tool to create your own, would have been welcome, but these are minor quibbles and you'll be retrieving this from the cupboard time after time. **MF**

Close Combat

A realistic war game with elements that will appeal to both tacticians and action junkies.

Graphics	**82%**
Sound	**80%**
Gameplay	**92%**
MF rating	**89%**

Wise words

Among the many sage remarks on the topic of war worth bearing in mind as you play, remember the advice of the Greek historian Thucydides: "War is the last of all things to go according to plan."

Erwin Rommel

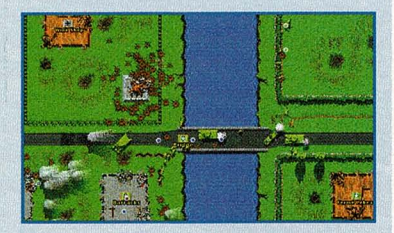
"The war will be won or lost on the beaches. We'll have only one chance to stop the enemy, and that's while he's in the water."

Stephen Ambrose

"This was about as bad a place to mount an infantry assault as could be imagined, as bad as clearing out a town house-by-house, as bad as attacking a World War I trench system. But it had to be done."

4 Now the fighting really breaks out. With the Germans safely ensconced in a stone building, you can risk moving your tank in to aid the infantry.

5 With the barracks in rubble and the Germans in disarray, send scout teams across the bridge to find and destroy any anti-tank teams that may be lingering.



6 With the route cleared, send across the tanks, along with several units of men who can use them for cover. The bridge is taken and victory is yours.

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Wizardry Gold

Epic battles in imaginary distant worlds await you if you take this journey into the realm of Wizardry. At least, that's what it says on the box...

Forget political correctness, forget chivalry, just get stuck in and attack these brazen hussies. They're not nice.

Below: A huge world with tons of locations means you get a lot of play time for your money. Pity it all looks and plays the same.

Not available

Sirtech tells us that there is no UK distributor for *Wizardry Gold* at the moment, so you won't find it in the shops. But do check with mail order software sellers, who often carry imports.

arcane

If you enjoy roleplaying games, then you probably already know about *arcane*, Future Publishing's own roleplaying and collectable card games magazine, available at all good newsagents.

The mining ship stumbles upon a mystical planet, hitherto hidden by the awesome power of the Cosmic Lords. The crew realise it must truly be the Planet of Phoozang, the great wizard who created the Astral Dominae, a globe with the power to control destiny itself. And so it falls to you to journey to this planet and recover the globe, that peace may forever rule.

When you read such a huge dollop of tosh, you know you're dealing with a roleplaying game, à la *Dungeons & Dragons* and its ilk. In these games, you play a group of adventurers, guiding them through a fantasy world, discovering treasure, meeting characters, and generally killing anything that has more teeth than you.

Two heads on that lion, but I'm still rolling along. Or am I?

You have a party of six, so your first task is to create your characters, one by one. For each, you choose from 11 races including human, dwarf, hobbit and "mook", plus a range of professions, such as fighter, thief, alchemist or ranger. Then each needs a huge range of statistics for every physical, mental and skill attribute imaginable, controlling how that character will handle the wide variety of situations your party will encounter.

The idea is to develop a balanced party with a variety of skills to cope with all situations. This depth and complexity *should* give this game its life. As you try to develop a fearsome team to complete the quest, you'll get to know and like your characters – the thief who can pick the lock on a booby-trapped treasure chest, the priest with health-regenerating spells, the mook that can say its name without laughing...

Whenever you accomplish a challenge, like solving a puzzle or killing a monster, you win the experience points appropriate to its difficulty. Once a character wins a certain number of points, he goes up an experience level, where you get to choose new skills or spells for him.

Mind you, not all the creatures you meet are hostile, and you can "talk" to the friendlier ones by typing sentences. This way you find clues and get helpful advice – in theory. In practice you ask where the museum is and the character says the weather is fine. The conversation continues in similar vein until you kill 'im anyway, just for being annoying.

Trouble – I couldn't solve the puzzle which led to The Bug Spray of Ancient Homebase.

The action occurs in rounds rather than real time – you decide which direction you want to travel in, move one grid square, then decide for each character if it should fight, cast a spell, dodge an attack, or use an object it has.

The game is huge and would take most people a good month of daily play to complete. There are hundreds of artefacts to find, dozens of monsters to battle, and around a hundred spells to learn. This is good ground for an absorbing, detailed and demanding game. But this isn't it. *Wizardry* is lacklustre, frustrating, fiddly and often downright infuriating.

For a start, the main viewing screen is small, with few background graphics. While the text descriptions talk of fantastic rooms filled with strange objects, what you see are four bare walls that look very much like the four bare walls in every other room – and the auto-map feature is *not* very auto.

Having to decide every character's response to every encounter becomes very tedious, and combat gets repetitive as varying your tactics seems to make disappointingly little difference – cold spells have the same effect on a ghost as on a fire-breathing dragon. It's also hard to assess your offensive tactics – although each blow and its outcome are listed on-screen, the statistics fly past at the speed of the credits on an American cartoon, making them impossible to read.

Some adventure games can require you to work out that you must dunk the wet fish in grass clippings to proceed, or something equally unlikely. *Wizardry* is at the other extreme – it has such a large and open world that you blunder around never fully understanding, or even needing to understand, the import of many objects.

This is actually a "gold", or improved, version of an old game, and frankly it looks old. Admittedly this means that it works fine on an LCIII, but unless you're a dedicated RPGer with an older Mac, you won't have the stamina required to complete this game. **DEREK SMITH**

Wander about for a couple of minutes and you'll meet a mob like this that'll wipe out your team in two seconds. Time to open that saved game yet again.

Wizardry Gold

Good ideas and potential, lost in an over-ambitious and outdated adventure game.

Graphics	**60%**
Sound	**55%**
Gameplay	**75%**

MF rating 70%

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Symbol Guide

All software titles listed are Mac CDROM except: (3.5") = floppy disk only
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● = New Product
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* = Not yet released - please call for availability or check web pages
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Screen: 640 x 480 • **Colours:** 256 • **Extras:** Single speed CD-ROM drive (double speed recommended)							

Mode

No friends? Nothing to do? Little idea of what's going on? Then come to the *Mode* party and have no friends, nothing to do and absolutely *no* idea of what's going on...

On the line

If you're really interested in *Mode*, you can check out the Club Mode Web site on **http://www.clubmode.com/** The site has tips for playing *Mode* and is actually slightly more entertaining than the game, but there's not a lot in it.

Ask a non-computer person if they know the name of any video games, and the chances are they'll say *Space Invaders*. It wasn't the first computer game – not by a long way – but it was the first to enter the mass consciousness, so much so that *Space Invaders* is the way that most people still think of games today.

Fortunately, *Mode* is unlikely to have such a pandemic influence. The secret of *Space Invaders'* success was that anyone who saw it knew exactly what it was about and what you had to do. Although *Mode* pitches itself far above the simplicity of the arcade game, the fact is that it has no final game objective, no tactical element and no real motivation to play.

Mode, you see, is an "interactive drama". This translates as "an adventure game with lots of full motion video and a smorgasbord of cheesy, American, sub-soap acting." The basic idea (and the game's objectives are so sketchy it never gets more complicated than this) is that you're a gate-crasher at an avant-garde party, and your objective is to stay as long as you can, talk to as many people as possible and sample as much of the entertainment on offer as possible.

To stay at the party, you quickly need to find yourself an invite "pin" ("badge", to the less Transatlantic among us), called a "Dome", worn by all the other guests. Once you get over the immense cleverness of this anagrammatic teaser and the witty assertions of the party's host that "No Dome means go home", you'll want to talk to some fellow guests and attempt to beg, borrow or steal one of these grey, metallic sawn-off ping-pong balls.

To talk to someone, you scroll sideways through the partyscape and just click on a guest. Well, I say talk, but in fact they do the talking, in close-up video clips that pop up when you click on anyone. Your unspoken response is controlled by the complexities of the Mood Bar™. This rainbow-etched lozenge enables you to grade your replies to guests by clicking on a range of colours from red (aggressive) to green (over-familiar).

The response you get depends on the flavour of your replies, but the only way to gauge what sort of answer to give is to guess, so the Mood Bar™ means success or failure in the game is unpleasantly random. The way to approach most encounters is to save the game before you start and keep replaying the conversation until – by a process of elimination – you hit the correct sequence of graded replies to produce your desired outcome. Computer games should, of course, be about skill and judgement, not just trial and error. But *Mode*, of course, isn't a computer game; it's an "interactive drama".

The rest of the "interactive drama" consists of aimlessly pointing-and-clicking around the *Mode* party sampling the Warhol-wannabe cabaret acts and entertainment. There is a sort of back-story you can piece together from what the guests reveal, but there's no reason to bother – there's no mystery to solve, no murderer to uncover as in similar games, no denouement to work towards. There's no goal; being there is its own end.

The sole praiseworthy aspect of *Mode* is the neat integration of QuickTime footage with still backgrounds. Here, the active screen (where the motion takes place) is kept quite small but the overall full-screen effect remains fairly realistic. The advantage with this system is that the game will run on much humbler Mac set-ups than most video-based games. Or maybe that's a *dis*advantage.

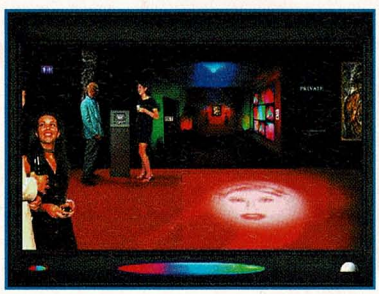
As a game, *Mode* fails. As a drama, it alternates between unintentional farce and fully-intentional poor taste. For example, one of the party's most pretentious guests – a novelist with her PowerBook in tow – asks you to continue your conversation sans-clothing in the sauna. (Admittedly the game does say it's aimed at "mature gamers", a term which is usually code for "adolescent males".)

Shocking! Get your sequence of clicks right and Mia here will invite you into the sauna. It's what all the fashionable young things do at parties. Apparently.

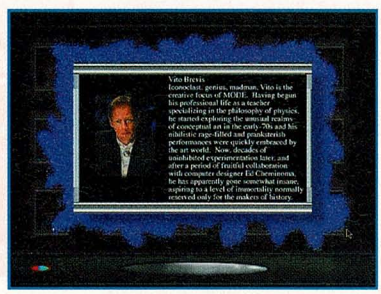
Though crude, games like *Space Invaders* were so involving that you couldn't stop playing. This crucial compulsiveness is what *Mode* lacks. QuickTime sound and vision are just a different way of making a game, not a new game in themselves. The Mac's excellent multimedia capabilities are wasted on "interactive" non-adventures like this. **JAMES ASHTON**

You aren't allowed to stay long without a badge. Persuade this dodgy De Niro-alike to give you his.

At the *Mode* party, you spend much of your time on this navigation screen, scrolling from side to side. Click on the partygoers to interact with them.



You can call up the ever-comforting Help system whenever you like. Unfortunately, it's not really that helpful...


Vito Brevis
Iconoclast, genius, madman. Vito is the creative focus of MODE. Having begun his professional life as a teacher specializing in the philosophy of physics, he started exploring the sensual realms of conceptual art in the early 70s and his nihilistic rage-filled and pinkatinish performances were quickly embraced by the art world. Now, decades of unabashed experimentation later, and after a period of fruitful collaboration with computer designer Ed Chemimma, he has apparently gone somewhat insane, aspiring to a level of immortality normally reserved only for the makers of history.

It simply has a directory of characters with pictures and a short biography of each. Still, helps you keep track of who's who.

Mode

A trial and error adventure game, with the "game" bit largely missing. Avoid like a debilitating contagious disease.

Graphics	**70%**
Sound	**71%**
Gameplay	**32%**

MF rating 40%

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MAC	**Processor:** 68040 • **RAM:** 8Mb	**POWERMAC**	**Processor:** Any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **HD space:** 3Mb • **Screen:** 640 x 480 • **Colours:** 256		
Extras: 2x speed CD-ROM drive (4x speed recommended)							

Police Quest SWAT

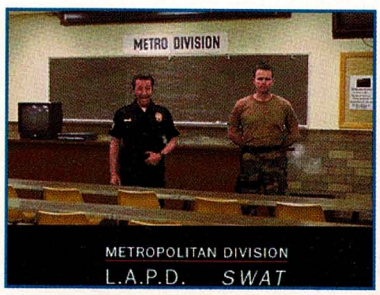
This is your chance to join the ranks of Los Angeles' elite police force and fight the good fight – protecting truth, justice and the American way. Or something fairly similar, anyhow...

There are only two differences between computer games and reality. In reality you only get one life and in computer games you don't have to take responsibility for your actions. These two differences define why computer games are fun and why, with intermittent exceptions, life isn't.

So when you come across a title like *Police Quest SWAT* and the line between game and reality is blurred, you have to wonder how anyone imagined "fun" was going to enter the equation. *Police Quest* is a fully comprehensive simulation of what it's like to be a new member of Los Angeles SWAT (Special Weapons and Tactics) – a division of the police specially formed so that insecure men who feel they really should have joined the army can play with big guns and shoot people.

Police Quest takes you from your first day as a raw recruit, through your training (weapons and tactics), and on to your initiation on the gun-crazy streets of LA. It's presented as a series of still background shots over which cleverly cut-out QuickTime movies of people and targets are overlaid. You move between locations using a "travel computer" – avoiding the need for time-wasting, processor-hungry animation and effects.

To play, you use a simple control interface that relies mainly on mouse clicks. Clicking on various objects in the SWAT training centre enables you to learn more about your profession – information that becomes vital later in the game. The action sequences, where you are called upon to put your exhaustive training into practice, consist mainly of toggling inventory (to choose the correct equipment for the job) and dexterous mouse clicking on a QuickTime-moving target.

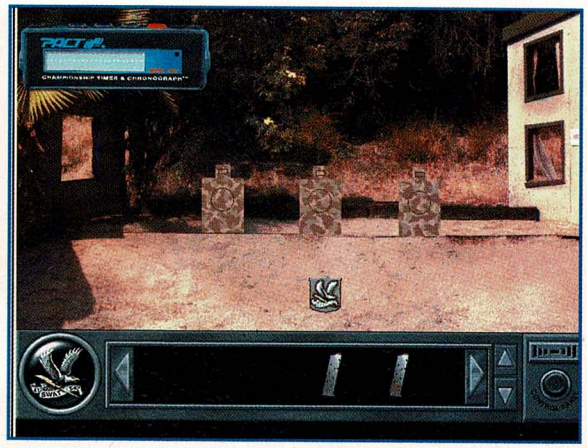


The game starts with a long and extremely boring lecture from your commanding officer. You can't even click to skip it.

The problem with the game is that it's absolutely no fun at all, for all sorts of reasons. First, *Police Quest* requires you to digest great reams of turgid text on police procedure and tactics. While these might be of (some) interest in a factual presentation, they're hardly what you look for in a game. This over-comprehensive approach also extends to the actual playing of the game, where, for instance, equipment must be laboriously re-selected for each mission, diluting the action and pace of the game.

And this lack of pace is *Police Quest's* second problem. The QuickTime sequences are all very clever, but the maker, Sierra, insists that you see each one through in its entirety – no matter how many times it's been played before. Lectures from doughty old sergeants may add to the realism of the game, but they are also get very boring *very* quickly.

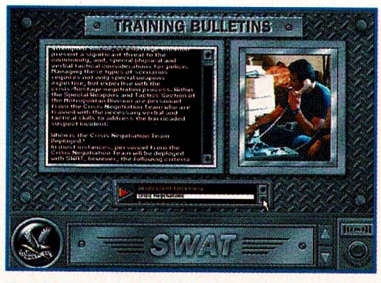
Finally, when you are called into action or you experience the thrill of the practice range, the actual gameplay on offer is pretty lame: a few clicks to set yourself up with the correct weapon and a few clicks on your target. A seat-of-the-pants arcade thrill *Police Quest* certainly is not. Worst of all, though, on more modest machines, even PowerMacs, mouse movement can become so slow and menu response so sluggish that the game becomes nigh-on unbearable.



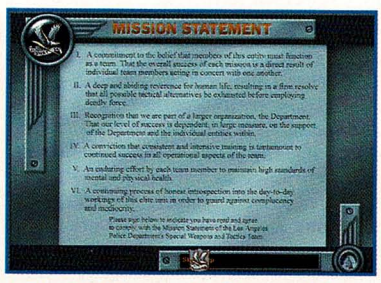
Click to select a weapon, click on the target. That's all the action you get, on the practice range or in the field.

You must choose a weapon for each mission. A female voice-over describes each for you. Informative, but fun...?

Police Quest suffers from the "worthy" syndrome. Not content to be just a computer game, it also wants to be an encyclopedic reference work on the SWAT organisation. But good games provide an escape from reality, not the feeling that you're being swallowed by it. Fun is the key to success, and you just don't find enough in *Police Quest*. **JAMES ASHTON**



Reading up on the training manuals will help you through the game. If they don't help you off to sleep first.



Authenticity is undoubtedly a good thing, but *Police Quest SWAT* takes things to unfortunate extremes.

Police Quest

Too much detail and too little game. Ultimately a dull and frustrating experience.

Graphics	**77%**
Sound	**72%**
Gameplay	**51%**

MF rating 55%

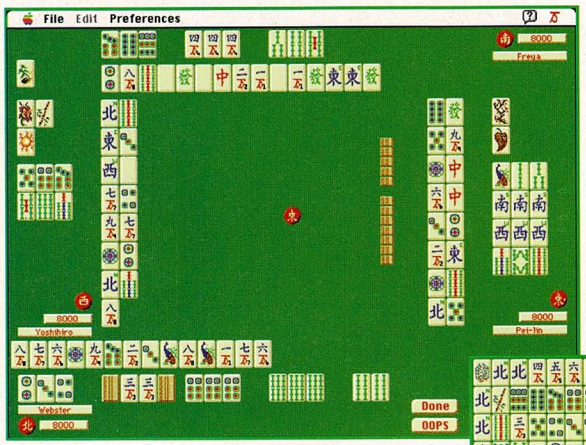
Talk talk

When you're in need of a little light relief from the rigours of the game, call up the "hard-hitting" interview with Daryl F Gates, the former Los Angeles Police Chief. It's a laugh a minute, honestly.

PRICE	£41.13	**ON SALE**	Now	**CONTACT**	MacLine on 0181 401 1111	**WEB SITE**	http://www.aspyr.com
MAC	**Processor:** 68020 • **RAM:** 1.5Mb	**POWERMAC**	**Processor:** any • **RAM:** 1.5 Mb	**REQUIRES**	**System:** 7.1• **Screen:** 640 x 480 • **Colours:** 256 •		
Extras: single-speed CD-ROM drive • Modem or network (optional)							

Mah Jong Parlour

The century-old oriental game of Mah Jong has arrived on the Mac. So prepare to gamble, and sail off on an easterly breeze into a world of dragons, bamboo and Cantonese characters...



Pei-lin, the player to our right, has just discarded a six bamboo, allowing us to call "mah jong". Hurrah.

Take a stroll around the markets of Hong Kong's Kowloon district and you're likely to hear a distinctive noise. It's not the shouting of the traders or the sorry warbling of the chickens at the butchers' stalls. No, this is a din that hits you suddenly and leaves you bemused. One minute you're pushing your way past the imitation-Rolex vendors, fruiterers and seamstresses; the next you're engulfed by a cacophony of clacking sounds, punctuated by cries of "poong", "kong" and "chow".

Take a minute to investigate and you'll probably find you're standing near the entrance to a Mah Jong parlour. Inside, hundreds of oriental gamblers are slamming Mah Jong tiles down on the tables before them in frenzied fits of intense competition. Businessmen will bet fortunes in cash; triad gangsters are even said to wager quantities of heroin. And although the Chinese communists are poised to take over Hong Kong in July, nothing will stop its citizens from playing Mah Jong. Indeed, the game is loved all over the Far East.

If you know the game, this will make sense. If you don't, don't despair. It's not as bad as it looks.

With *Mah Jong Parlour* from Aspyr Media, nothing need stop you from playing Mah Jong either, on your Mac. This faithful recreation of the tile-based tabletop game enables you to play either your Mac or up to three other people via AppleTalk or by modem. A netplay option is available for competition over the Internet. Other tile-matching games might claim to be like Mah Jong, but this is the real thing through and through.

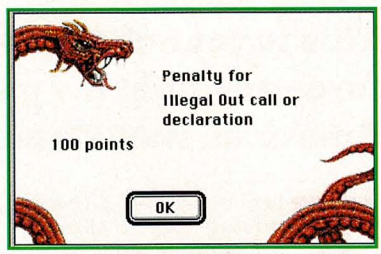
If you know Mah Jong, you'll find *Mah Jong Parlour* a perfect implementation of this complex rummy-style game. The computer minds all the intricate rules, deals and keeps score, leaving players to worry about collecting tiles in the three suits (bamboo, circles and characters), as well as the honour tiles such as the winds (north, south, east and west) and the dragons (red, white and green). Naturally, various options are available. You can, for instance, play either with or without the "flower" and "season" bonus tiles. Or you may even apply the special – and almost incomprehensible – Rii-chi betting rules.

More importantly, there are three skill levels. **Novice** is designed to teach the game and is forgiving when you make mistakes. Here, computer opponents aren't as attentive as they could be, and experienced Mah Jong players can win around 40% or 50% of the time. At the **Experienced** and **Expert** levels, however, gambling points are deducted when anyone wrongfully attempts to claim tiles discarded by other players. Games are faster and tougher, and can get pretty competitive.

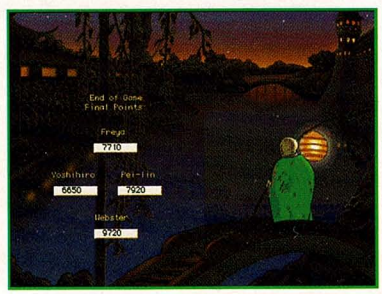
What *Mah Jong Parlour* lacks, however, is the atmosphere of a real Mah Jong parlour. The tiles are a bit too small on screen, and there's no finesse in the way the computer flatly announces each tile as you discard it, or calls the "poongs", "kongs" and "mah jongs". Furthermore, the winning and losing animations are pitiful. If you win a game (which can take around two hours) a little oriental man standing by a river briefly waves at you. Lose, and a dragon breathes some fire. Hardly inspirational either way.

This low-key approach does avoid the loud, overly-energetic and intimidating side of Mah Jong as it's played in cities like Hong Kong. If you wish to learn the game, *Mah Jong Parlour* will definitely help. It's also the perfect answer if you have no-one to play with or wish to play over the Internet. And because its graphics and sounds are so unremarkable, it will work on almost any Mac. Surely, however, a little more excitement and oriental mystique could have been evoked in the graphics and sounds – just for fun. As it is, though it's authentic, *Mah Jong Parlour* is a touch too bland and unrewarding.

GARRICK WEBSTER



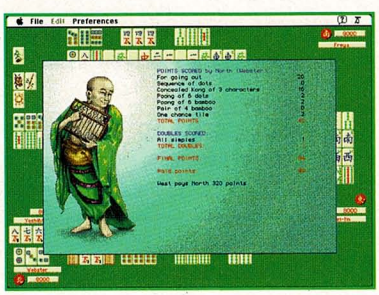
Wrongly claim a tile someone has discarded and you cop a stiff penalty if you're playing in Expert or Experienced mode.



We won, and a lantern-toting man waved to us in this animated sequence. Not quite as stunning as you might hope.

The rules

Mah Jong is similar to the card game gin-rummy, only more subtle and complex. The point is to collect a complete hand before any of the three other players. This is done by building up sets of identical tiles or runs of tiles in the same suit.



A man with an abacus tallies your score after each hand – and keeps a record of how many you've played, how many you won and how many points you've scored.

Mah Jong Parlour

The game itself is well implemented, but don't expect the rapturous atmosphere of a real Mah Jong parlour. Costly for something with so few bells and whistles.

Graphics	**61%**
Sound	**64%**
Gameplay	**78%**
MF rating	**68%**

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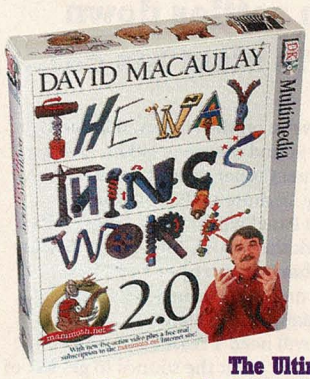

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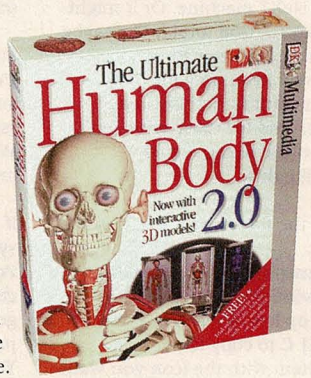

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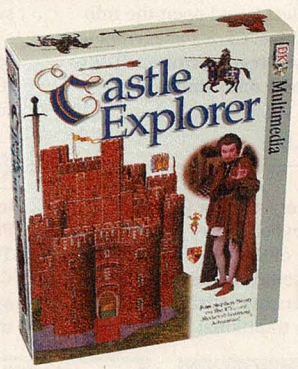

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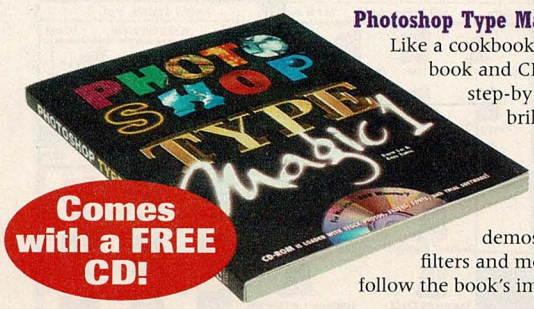

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Maybe it's something to do with the concept of shareware: software you can try out for nothing, and pay for only if you like it and continue to use it – and are honest enough. So how do you find the decent shareware programs in among all the dross? You don't have to, because each month MACFORMAT does it for you...

The Artist as a Young Man

We were ever so impressed by some of the revelations in *Guide to the Artists* (reviewed on page 117), we thought you might like to find out just how some of the world's most famous painters started out, so that's the theme for this month's margin notes.

3D Control Panels 1.2

Icons
Freeware

The craze for anticipating the Mac's next OS continues. The Control Panel icons provided here, though, are way out of date – they are styled in anticipation of the Copland OS, which went the same way as the dodo, only slightly more recently. They should really have been styled after BeOS. Sorry? What's that? Ah, right, the next Mac OS will actually be from the NeXT machine. Or it might be Windows NT – God forbid. Or maybe something else. Anyway, these nice 3D-effect icons will liven up your Control Panels folder until something better comes along. And for those who don't know how to use them, it goes something like this:

1. Highlight the folder with the icon you want to use.
2. Press **[command] I** to call up the item's Info window, then click on the icon in the top left to select it. Press **[command] C** to copy it.
3. Find the item with the icon you want to replace, select it and open the Info window as above. Click the current icon to select it and press **[command] V** to paste in the new one. Simple!

Clicker 4.0

Utility
Shareware, registration fee $10

Macintosh keyboards are pretty soulless things. Some of them feel rubbery, some are stiff and some are distinctly clackety, but none offers the satisfying auditory feedback of a traditional typewriter. And while we're on the subject, mice aren't terribly sound intensive either, are they?

Manuel Casper doesn't think so, anyway, because he has produced a Control Panel which plays sounds when you click the mouse, hit a key or use the **[spacebar]**, **[return]** or **[tab]** keys. What's more, the sounds he's provided are actually rather lifelike.

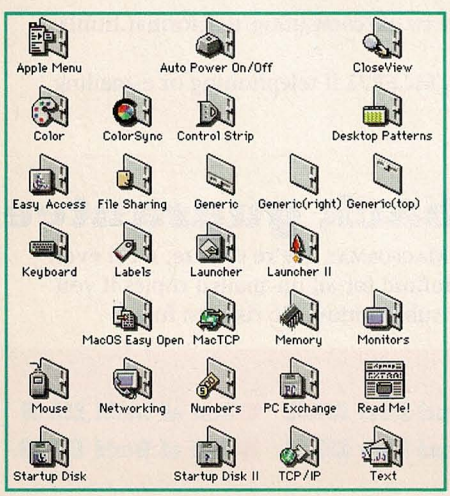
You will need a reasonably quick Mac if you don't want the sounds to get out of sync with the keyboard, but on a PowerMac 6200 (75MHz 603e PowerPC chip) there aren't any problems. If you get tired of the sounds provided with the program, you can substitute your own. You can also open the Control Panel and switch off the options you don't want.

Perhaps it's a bit of a frivolous thing to spend your $10 registration fee on, but it's really rather nice for a while, in a funny kind of way.

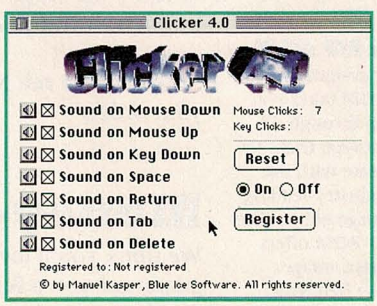
Feò's Icons Volumes 1 & 2

Icons
Pintware

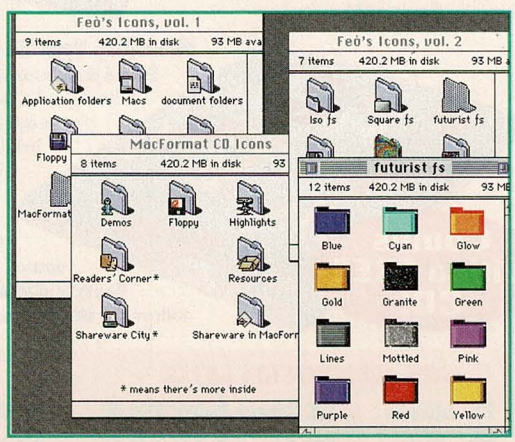
These two volumes contain countless Copland-style folder icons for specific applications, floppy disks and all manner of other items. They're all rather good,



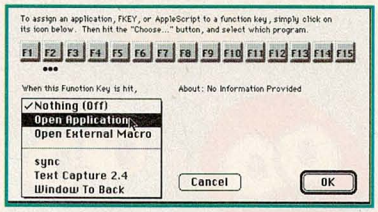
3D Control Panels: If you want to give your Control Panels a Copland look, here are the icons you need. We've had about six new OS designs since then, though.



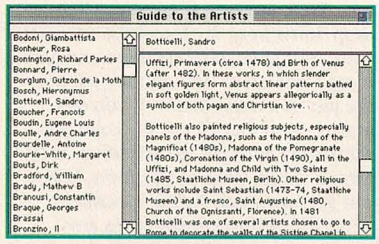
Clicker 4.0: Just the thing if you want your keyboard to sound like a real typewriter.



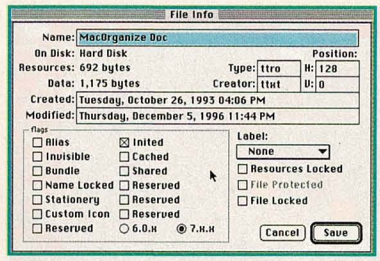
Feò's Icons: More icon designs for folders than you could possibly imagine – or use, unless you have a huge screen.


To assign an application, FKEY, or AppleScript to a function key, simply click on its icon below. Then hit the "Choose..." button, and select which program.
F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15
When this Function Key is hit,
About: No Information Provided
Nothing (Off)
Open Application
Open External Macro
sync
Text Capture 2.4
Window To Back
Cancel
OK

***FunKeys 1.2:* At last. Now you can find a use for that row of Function keys across the top of your keyboard.**


Guide to the Artists
Bodoni, Giambattista
Bonheur, Rosa
Bonington, Richard Parkes
Bonnard, Pierre
Borglum, Gutzon de la Moth
Bosch, Hieronymus
Botticelli, Sandro
Boucher, Francois
Boudin, Eugene Louis
Boulle, Andre Charles
Bourdelle, Antoine
Bourke-White, Margaret
Bouts, Dirk
Bradford, William
Brady, Mathew B
Brancusi, Constantin
Braque, Georges
Brassai
Bronzino, Il
Botticelli, Sandro
Uffizi, Primavera (circa 1478) and Birth of Venus (after 1482). In these works, in which slender elegant figures form abstract linear patterns bathed in soft golden light, Venus appears allegorically as a symbol of both pagan and Christian love.
Botticelli also painted religious subjects, especially panels of the Madonna, such as the Madonna of the Magnificat (1480s), Madonna of the Pomegranate (1480s), Coronation of the Virgin (1490), all in the Uffizi, and Madonna and Child with Two Saints (1485, Staatliche Museen, Berlin). Other religious works include Saint Sebastian (1473-74, Staatliche Museen) and a fresco, Saint Augustine (1480, Church of the Ognissanti, Florence). In 1481 Botticelli was one of several artists chosen to go to Rome to decorate the walls of the Sistine Chapel in

***Guide to the Artists:* A serious, comprehensive and very substantial *HyperCard* reference work (but with no art in it).**



***MacOrganize:* Cool. You can change your files' creator types, their bundles, their inited wotsits and lots of other things, rendering them permanently knackered.**

although we're especially flattered by the set designed for the MACFORMAT Cover CD. What makes them particularly attractive is that they're all free.

If you like them, and you're up in the Edinburgh area, drop into the Holyrood Tavern and buy Feòrag NìcBhrìde a pint out of gratitude.

FunKeys 1.2

Utility
Shareware, registration fee $7

Most Macs now come with extended keyboards – the ones with the row of Function keys across the top. Far from being a legacy of PC origins, these Function keys are useful on Macintoshes as well. Indeed, many programs use them as short-cut keys.

However, with *FunKeys* you can set them up to do precisely what you want. Once you've installed the *FunKeys* Control Panel and restarted, it's easy to attach actions to each of the 15 Function keys. You can program a key to launch a specific application or carry out an AppleScript macro, or you can attach one of three special *FunKey* (FKEY) routines: sync (incredibly technical, don't worry about it); Text Capture (enables you to copy unselectable text, apparently); and Window To Back (which switches through stacked Finder windows in sequence). Apparently, other FKEY routines are widely available – the documentation tells you where to look.

Ah, but what if your user-defined *FunKey* actions conflict with Function key assignments made by your software? *FunKey* is designed to take precedence, but if you hold down the **[shift]** key when you press the Function key, the original action is restored.

Ah, yes, but what if you don't have an extended keyboard? No problem – *FunKeys 1.2* creates an additional menu which contains all the available Function key assignments.

The only thing *FunKeys* doesn't do is open documents. This is a pity, because it's about the most useful thing it could do. After all, you generally launch an application to edit a file, rather than for its own sake. Still, it could prove pretty useful, and at a mere $7 it's hardly going to bust the piggy bank.

Guide to the Artists

Reference
Shareware, registration fee $15

Did you know that Botticelli's real name was Alessandro di Mariano dei Filipepi? Apparently so. Or that Paul Cézanne became alienated from his family on account of the revolutionary nature of his work? Rather sad, really. And did you know that Eadweard Muybridge took over 100,000 photographs of animals in motion? What a nutter.

You can find out all this and more – much, much more – in this *HyperCard* stack from Iverson Software Co. The number of artists included must run into the hundreds, and they typically have several hundred words devoted to their lives and their work. The writing is of a high standard, too.

This stack doesn't look much – there's no colour, no fancy graphics or clickable icons – but it's highly effective and functional. If you have an interest in art and $15 to spare, this offering is definitely worth a close look.

InDisk™ 1.4

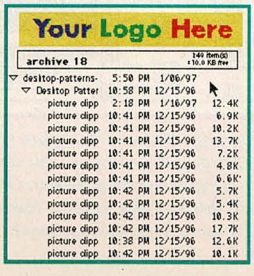
Utility
Shareware, registration fee not quoted

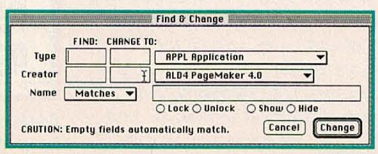
How many times have you wanted to send a floppy disk to someone and then cursed the fact that you can't readily print out a sheet of paper that you can fold into a disk envelope with the contents of the disk printed on it and maybe your logo too and all in the right place? Exactly what I thought.

InDisk 1.4 will put this right. When you launch it, it tells you to insert a floppy disk. It then catalogues it, sub-folders and all, and displays the results in a little window. The program also calls up the **Print** dialogue so you can reproduce the listing on paper. You can then follow the software's instructions and fold the printout to form your disk envelope. And don't forget to insert your logo, if you have one.

InDisk 1.4 is, admittedly, rather clever. This is a demo version, though, limited to ten uses. And it's also designed for US-size stationery, so you might have to use the program's Nudge command to jiggle it into the right position for A4 paper. However, unless you have an Internet account, it's going to be a bit difficult to pay for. Well, impossible, actually.

***InDisk™ 1.4:* A rather neat way to catalogue your floppies while making handy disk envelopes.**


Your Logo Here
archive 18
desktop-patterns- 5:50 PM 1/06/97
Desktop Patter 10:58 PM 12/15/96 12.4K
picture dipp 2:18 PM 1/16/97 12.4K
picture dipp 10:41 PM 12/15/96 6.9K
picture dipp 10:41 PM 12/15/96 10.2K
picture dipp 10:41 PM 12/15/96 13.7K
picture dipp 10:41 PM 12/15/96 7.2K
picture dipp 10:41 PM 12/15/96 4.8K
picture dipp 10:41 PM 12/15/96 6.6K
picture dipp 10:42 PM 12/15/96 5.7K
picture dipp 10:42 PM 12/15/96 5.4K
picture dipp 10:42 PM 12/15/96 10.3K
picture dipp 10:42 PM 12/15/96 17.7K
picture dipp 10:38 PM 12/15/96 12.6K
picture dipp 10:42 PM 12/15/96 10.1K



***MacOrganize:* Change file and creator types globally and automatically. Good for a laff if you've got a few minutes to spare and no more use for your Mac.**

MacOrganize 2.3.3

Utility
Shareware, registration fee $15

This program is more frightening than the velociraptors in *Jurassic Park*. It makes you feel more queasy than the knife through the shoulder blade in *Shallow Grave*. It's even more horrifying in its implications than those little red dots in *Predator*...

MacOrganize can do lots of rather remarkable and spooky things. It can set the location of objects in Finder windows; it can lock volumes; it can control the way objects are listed and sorted in folders; and it can change all those technical gizmos related to file types and creators. It can even change one creator type to another, automatically, across your entire hard disk.

If you are a Mac expert – the sort that can recite ROM addresses over a bowl of Corn Flakes – try it out. Otherwise, handle it with the sort of care you would normally reserve for a wheelbarrow full of nitroglycerine.

Mosaics

Game
Freeware

Tetris has a lot to answer for. The classic falling-tiles game was originally developed by a Russian programmer whose computer, presumably, could only display and manipulate giant square pixels approximately half an inch wide. Why else would someone design a game based on moving clumps of them around the screen, trying to form unbroken lines?

The bizarre thing is that *Tetris* has become an all-time gaming classic on just about every platform. (Can you beat 300,000 on the Game Boy version? Ha – didn't think so!) It has also spawned ➤

Toulouse-Lautrec

The French artist's diminutive stature arose from an childhood accident in which he broke both legs. Because of a congenital calcium deficiency, they remained stunted for the rest of his life.

Van Gogh

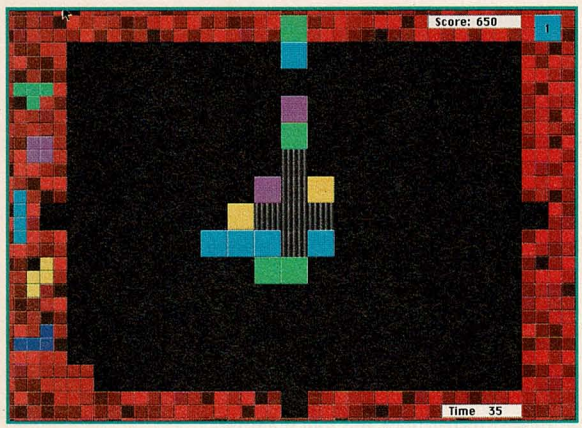
Vincent van Gogh was once a student of theology. He worked as an evangelist among the miners of Wasmes in Belgium.

Munch

Edvard Munch – he who painted *The Scream* – staged an exhibition in 1892 in Berlin containing pictures which were so disturbing the authorities were shocked into closing it down.

Gauguin

Back in 1874, Paul Gauguin was leading a pretty comfortable life as a bourgeois stockbroker with a wife and five children. That year he met Pissarro, went to his first exhibition and was hooked. In 1883 he devoted himself to painting, forcing his wife and children to return to her family. In 1891, financially ruined, he fled to the South Seas, where he spent the rest of his life.



Mosaics: **An unusual *Tetris* spin-off which has you trying to create shapes rather than fit them together in lines. Good for animal lovers.**

lots of *Tetris* not-quite-lookalikes.

This one is called *Mosaics* and involves manoeuvring square blocks into *Tetris*-style shapes. This time, though, they pop out of holes in the wall and you have to form the shapes in the centre. When you get one right, up pops the picture of an animal (what did you expect – money?) and you're away to the next level.

Mosaics is tricky and actually not bad at all. You get three sets of keyboard controls to choose from too, so it's no use complaining that the keys are in the wrong place. If you're crap at it, you're crap at it. However, if you are crap, you might like to try this next one...

Edward Lear

Edward Lear is best remembered for his nonsense verse, but he originally worked as an artist and is even now regarded as one of the most vivid and precise ornithological illustrators of all time. He travelled widely, producing *The Illustrated Journals of a Landscape Painter.*

Skittles 1.0.7

Game
Shareware, registration fee $20

Surprisingly, this *Tetris* clone is not based on different-shaped blocks, but on Skittles. And not the wooden sort you have to clobber with a ball, either, but rather the tasty multicoloured chewy ones you can buy in bright red bags at any good supermarket, newsagent or corner shop. Unless you have exceptionally good teeth, it will pay you not to get the two confused.

Now, everyone knows that Skittles are chewy. They're not supposed to be, but after they've been in your coat pocket for... Well, anyway, these sticky Skittles drop down from the top of the screen in pairs. You have to rotate them and move them from left to right as they fall onto the pile of Skittles below. If you can arrange it so that identically coloured skittles fall adjacent to each other, they form a visible bond of stickiness. If you can get four stuck together – either vertically or horizontally, or in any combination of both – they disappear. You have to keep going as long as you possibly can, hoping against hope that the Skittles don't rain down any faster than you can dispose of them.

This is just a demo version, and if you finally beat it and want a taste of the real thing, you're going to have to cough up $20. It is a pretty good game, it's true, but for that money you can get a good supply of bags of the real thing. If that's what you want.

Skittles: **Admit it. You separate all your Skittles into their different colours, don't you? You'll be good at this game, then.**

OncePerDay

Utility
Shareware, registration fee $10

Macs are very nice and friendly. They let you put items, or aliases to items, in a folder called Startup Items in your System Folder. When your Mac starts up, it launches these items automatically. Which is great, even if it does take a little bit longer.

And then, a bit later, usually around 10am, your Mac crashes with a Type 11 error, so you have to restart – and wait while all those items launch again. And then, when it crashes again, immediately afterwards, with a "Floating Point Unit Not Installed" error, you have to wait while it starts up yet again and opens up all these files, yet again.

This gets to be a real, real drag when, at around 10:14am, you get the Type 37 error which usually pops up somewhere between elevenses and lunch. This is when those startup items start to get just that teensy-weensy bit irritating.

The cure is to use *OncePerDay*. Pop the application, or an alias to it, into your Startup Items folder, then create a folder called *OncePerDay* in the Preferences folder and pop all your startup items into that. From now on, those items will only launch the first time you start up your Mac on any one day.

Program Switcher 4.2.0

Utility
Shareware, registration fee $10

Fans of Windows 95 (they should be shot) love the fact that on their PC they can switch between running applications by pressing **[alt][tab]** (or something like that). They like doing this, even though you can simply take the mouse down to the Windows 95 Taskbar and click the button for any current application, window or document. Similarly, some might feel the Macintosh absolutely has to have an equivalent, even though you can pick any current application from the Mac's Applications menu.

However, if you do have to switch applications from the keyboard (maybe you left your mouse just out of reach, or something), install the *Program Switcher* Control Panel. You will then be able to cycle through the open applications by pressing **[alt][tab]** (or **[option][tab]**, in more traditional Mac terms) on your keyboard. Look, ma, no mouse!

More usefully, you can attach actions to your Function keys. For example, by default **[F8]** will switch to the Finder and

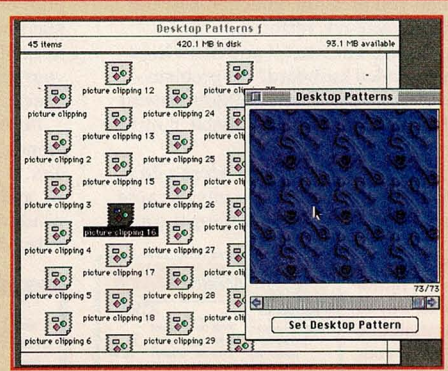
Desktop Patterns

Interface
E-mailware

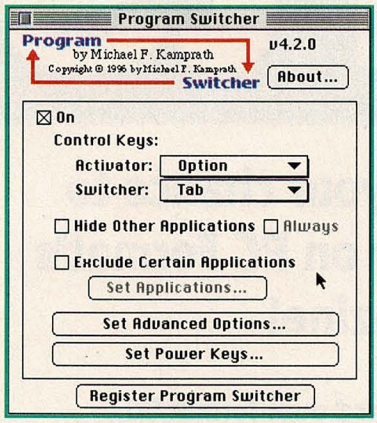
Before System 7.5, you could change your Desktop pattern by switching individual pixel colours in the General Controls Control Panel. System 7.5 doesn't let you do that. Instead, it provides 64 alternative patterns, based on tiled – joined together – designs of up to 64 x 64 pixels. You can, however, still add your own distinctive touch simply by creating new tiles in any paint package and then cutting and pasting them into the Desktop Patterns Control Panel preview window.

Alternatively, you could try some of the patterns which other people have produced, including this highly attractive set, for example. They're supplied as picture "clippings" – another System 7.5 invention – and you can take a look at them just by double-clicking on their icons. To add them to your Desktop Patterns Control Panel, you merely have to open it and drag and drop the clippings onto the pattern window. If only it were this easy to redecorate a room... There are lots of examples here to try and, almost without exception, they're colourful, well-designed and generally a treat to look at. And they're free, which always helps. If you have 7.5, you needn't have a dull Desktop!

Star of the month



Desktop Patterns: **System 7.5 owners will find a feast of Desktop patterns here – just drag the clippings onto your Desktop Patterns Control Panel to add them to your screen. Anyone for embossed blue squiggly things, then?**



Program Switcher: **Perfect if you love switching applications but hate mice.**

hide all other running applications. Now, that's more like it.

So, there you go. If you think a keyboard is the only proper way to control your Mac, your dream of a mouseless future is one step closer.

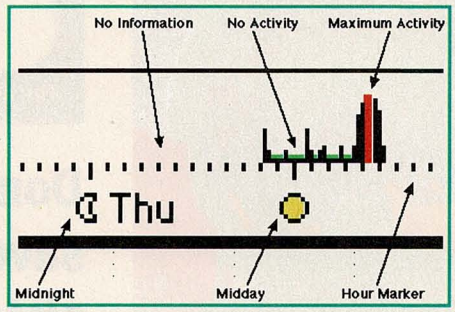
Workin' Too Hard 1.0

Utility
Freeware

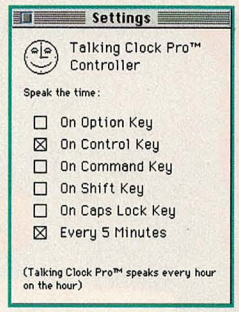
You need a break. You need to take a rest from your keyboard and make a coffee, get some sleep or take a holiday in Bermuda. How do you know? Because this program has just told you so. *Workin' Too Hard* monitors the activity on your Macintosh, building up a log which shows just how long you've been hunched in front of the display.

It only record mouseclicks, though, so if you're a writer or keystroke-combo junkie, it's going to register almost no activity even though you've been hammering away nineteen to the dozen all morning.

Workin' Too Hard seems like one of those things people program to see if they can do it, then put into the public domain to see if anyone else is interested. Don't look at me.



Workin' Too Hard: **We see a discrepancy between the diagram in the documentation and the display on our 6200. Maybe our Mac has been working too hard.**



Talking Clock Pro: **It's just marvellous what they can do now, isn't it? Here's a clock which tells you what time it is every five minutes.**

Sentry

Security
Shareware, registration fee $10

There's no such thing as paranoia. They really are out to get you. I should know. That's why I've installed *Sentry*, a System Extension which logs each time your Mac is started up and used, storing all the relevant information in a text file in your System Folder.

Of course, this is a file "they" can then open up and wipe clean, so you'll never know they were there. Even though they definitely were.

Damn. For just one minute, I thought I had the answer.

Talking Clock 2.0.1

Utility
Freeware

"It is twennypass eight pee em." The trouble with all those on-screen clocks is that you actually have to look at them to see what time it is. So it's a really nice change to have your Mac tell you what time it is.

"It is twenny fifepass eight pee em." Of course, the synthesised voice does grate a bit, and once you've got used to it... "It is haffpassate pee em." As I was saying, once you've got used to working on a clock-watching talking Mac, the novelty starts to wear off. Especially when... "It is eight thirdyfife pee em." Oh, for God's sake, I really don't care. Please just shut up, will you?

Snow 0.0.2

Entertainment
Freeware

It's getting a little late for snow this year, but if you're a frost lover who's already starting to feel nostalgic for that muffling blanket of flighty dancing white snowflakes, not to mention the odd glimpse of Santa flying across the sky on his sled, this program will cheer you up.

Snow displays all of these things on your Desktop as you work, and you can even set the number of flakes and decide whether you want to see Santa and the Christmas tree. And all of this is done with 20K of RAM. Remarkable. **MF**

Hieronymous Bosch

The paintings of Hieronymous Bosch may appear to be the works of a disturbed genius, but in real life he was a stalwart of the local church who rarely travelled.

Snow: **Can you see the snow? Can you see Santa? Can you see the tree? It's just above the Wastebasket. What does this mean?**

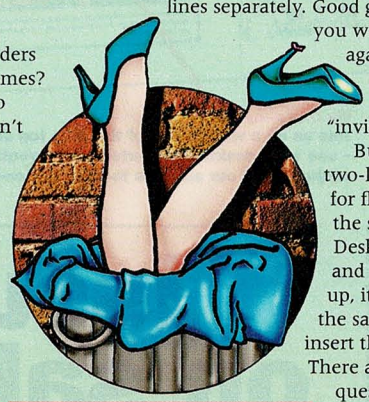
2 Line Names

Trick
Freeware

Have you ever wanted to give folders or other Finder icons two-line names? Really? Well, this is the answer to your prayers. Even better, it doesn't involve any System Extensions, Control Panels or other dodgy widgets. In fact, you only need the specially Res-Edited folder icon provided here. To be more precise, the icon itself has been Res-Edited out, leaving only the folder title.

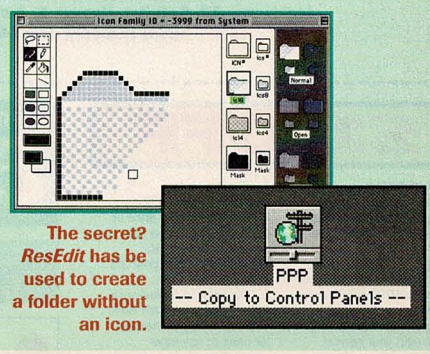
This is where it all gets just a tiny bit tedious. To make it work, you have to copy and drag this fiddled-with folder title underneath the label of your chosen icon, then edit the two lines separately. Good grief. And, of course, if you want to move the icon again later, you will need to drag a marquee round it and the other "invisible" folder.

But hey, at least you have two-line names. And it works for floppies, too – if you drag the second line onto the Desktop from the floppy and leave it properly lined up, it will always reappear in the same place when you insert that particular disk. There are times when the question 'why?' seems barely adequate. It's just so much easier to give your folder a shorter name.



In the bin

2-Line Names: **Coo, look at that – an icon with a two-line name. It must be part of this week's new Mac OS.**



The secret? *ResEdit* has be used to create a folder without an icon.

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QuarkXPress 3.32

Multimedia XTensions aside, *XPress* hasn't had a major upgrade for years and now faces stiff competition from the likes of *UniQorn* and Adobe'e heavily revamped *PageMaker 6*. Does it still deserve the DTP crown?

PageMaker might have set the DTP ball rolling, but *QuarkXPress* is the program which made the Macintosh the success it is. *XPress* revolutionised desktop publishing in the late '80s, almost single-handedly redefining the publishing market and making it possible for quite small teams to produce magazines quickly and flexibly, making changes and adding stories right up until deadline.

You could also have the art team and the writers sharing the same office, so that – in principle at least – magazines could be "designed" in the proper sense of the word. The pages could be laid out to enhance the clarity of the message, thanks to the new-found opportunities for writers and designers to collaborate and work together.

That's one theory. Or maybe it happened another way? Maybe the Macintosh single-handedly guaranteed *QuarkXPress's* success and ultimate domination of the professional DTP market? Maybe it was only the Mac's performance, simplicity and advanced type- and graphics-handling capabilities that made *XPress* possible?

Both theories have an element of truth. It's safe to say that although the Mac would almost certainly have made it without *XPress*, and *XPress* would probably have made it – eventually – without the Mac, they were two products well ahead of their time which came together at the ideal moment. And now, with the release of *Immedia*, Quark looks set to storm the world of multimedia creation as well.

But *Immedia* is an XTension, an add-on to *XPress*, so to a degree its success depends on the soundness of the underlying engine. *XPress* hasn't had a major upgrade for a couple of years now, so can it still cut the mustard in the increasingly competitive DTP world? Rod Lawton takes the opportunity to ask if it's all it's cracked up to be.

First there was the word

Like any DTP program, *QuarkXPress* combines text and graphics on a page. And its text-handling abilities have earned it lots of friends – not because *XPress* can do things other programs can't, but just because it does them so reliably and fluently.

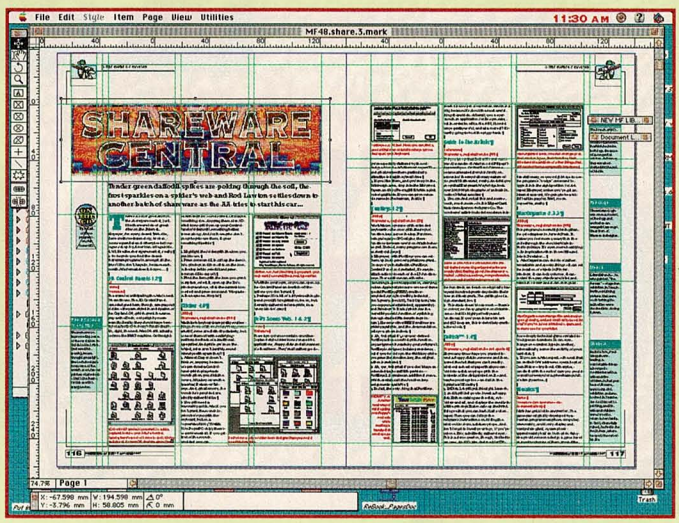
Text is placed in boxes, and you can create any number of boxes on a page. However, each document has at least one "master page", from which you create any additional pages. A master page will usually have a text box by default, and text can flow automatically from one page to the next. Or you can elect to set up the links manually, flowing text through any other boxes you create, in any order. Where necessary, text boxes can also be entirely self-contained. On these two pages, for example, the headline, strapline and captions all live in separate, unlinked boxes, but the main text flows through linked boxes on the left- and right-hand pages.

It's a simple enough system and provides all the design flexibility needed to produce the most complex magazine or newspaper layouts. Text boxes can contain any number of columns, so it's easy to build multi-column layouts containing multi-column boxouts.

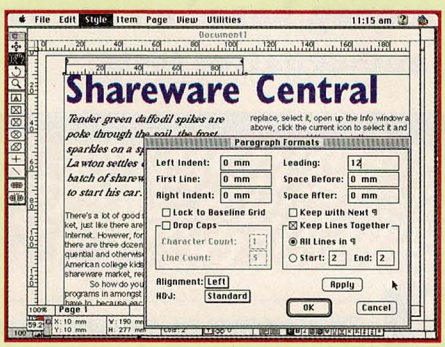
But what about text and type control? In the early days, *XPress's* typographical tools were way ahead of their time, but now they're pretty standard. You can adjust tracking (character spacing), kerning (the space between pairs of characters), baseline shift (the distance between a character and the line it would normally sit on) and horizontal and vertical scaling. You also get pinpoint control over leading and type size – *XPress* allows ultra-fine control of every aspect of typography. You do have to migrate to other software for fancy type effects, though most professional designers will have *FreeHand*, *Illustrator* or *Photoshop* anyway.

Where *XPress* really scores is the "safe" way it handles text. Unlike some of its rivals, *XPress* makes it pretty hard to lose text. A single text box can contain thousands of words, even if most of them won't fit and they "overflow" (indicated by an overflow symbol at the end of the last line). Although you can't see them, the extra words stay at the end of the box until you decide where they should go. And if you break a link in a long chain of text boxes, you don't risk losing the text in a suddenly unlinked box – as you do in *PageMaker*.

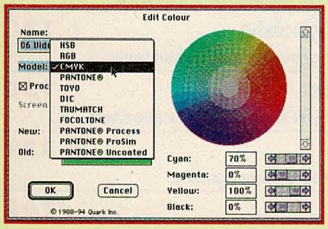
Best of all, though, is the ease with which you can edit pages on the screen. There isn't a separate



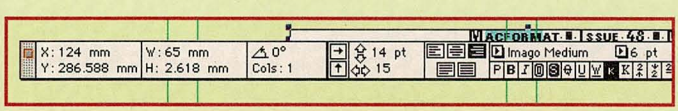
Complex layouts soon get cluttered with box outlines and guides. Thankfully, you can turn the guides off to get a better impression of the design.



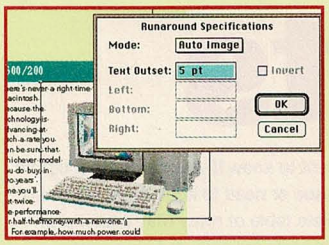
***XPress's* type control is excellent. It can handle hyphenation automatically, prevent widows and orphans and lock text to a user-definable baseline grid to ensure that text in adjacent columns always lines up.**



***XPress* supports RGB, HSB, Pantone and CMYK colours, among others. It also has a colour-matching system to help simulate printed colours produced with CMYK inks on your RGB-based monitor.**



The *XPress* interface has lots of neat touches for helping you speed up your work as you gain experience. The Measurements Palette gives you fast access to commonly used box and text formatting tools.



You can use the Auto Image option to get text to flow around a cut-out image automatically.

"story editor" (like *PageMaker's*), because you simply don't need one. Editing text in *XPress* is quick, efficient and logical, and you can follow the text through the most complex of routes just by navigating through the boxes with easily-remembered keyboard commands.

You also get a spellchecker and word count feature and, of course, style sheets for fast text formatting, consistency between documents and global style changes, though style sheets normally apply only to whole paragraphs at a time. *XPress* can also create drop caps via a simple formatting option, whereas most other programs struggle with unwieldy macros or separate single-character text boxes.

What's more, it has a multi-layered interface – as you grow more and more accustomed to it you can progressively abandon the menus in favour of a whole lexicon of keyboard short-cuts which help *XPress* veterans knock pages into shape with bewildering speed.

Worth a thousand words

Text goes in text boxes, pictures go – unsurprisingly – in picture boxes. These can be rectangles, ellipses, round-cornered squares, polygons and even reshapable irregular polygons. They can be transparent or coloured (though not translucent), and they can have frames in any thickness or colour, in a variety of styles. You can set the "outset" (how close text comes to the box when it flows around it) and even get text to flow around the outline of an image which has been "cut out" from its original background. Picture boxes can also be anchored in text so that they move with it when it is cut or reflows. This makes it easy to add icons or symbols to text without having to reposition them each time the layout is altered.

XPress can exercise some contrast and colour control over imported bitmaps, but most designers will choose to carry out image editing in other applications, such as *FreeHand* or *Photoshop*. Other DTP programs give you more image control. *PageMaker 6.5*, for example, will support *Photoshop* plug-ins.

In this day and age, *XPress's* graphics-handling tools are hardly extraordinary. However, as long as you have other graphics applications to do this work, *XPress's* box and layout tools will integrate the results with your text perfectly.

It's this layout phase which causes the most disagreement. To some, *XPress* has an excessively rigid approach to page design. You can't put anything on the page without creating a box first, and unless you turn off the visible guides, half of what you see on the page is dotted box outlines.

Compared to the simplicity of *PageMaker's* approach, where you just "place" text or graphics on your blank page, *XPress* does seem a bit regimented. But that's an illusion. All DTP programs create boxes of some sort for elements on the page, but most of them do it automatically as you import the elements.

Many people like the *XPress* approach, which works well if you don't mind creating the boxes and then importing the material. You may also prefer it because of the way pages can be roughed out before the material is available. When it's ready, you simply import it into the appropriate box. If your work is at all repetitive, creating templates containing all the necessary boxes can speed things up enormously.

***XPress* Libraries can be used to store frequently-used pictures, boxes, icons and other objects. To use them, simply drag them onto your pages as and when you need them.**

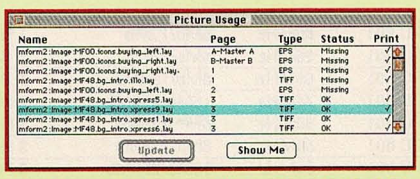
Although the box outlines can be pretty obtrusive – especially in a complex layout – they do make it much easier to grasp the structure of the document when you want to alter it. You can always turn the guides off to get a better impression of the finished document.

Anything more to add?

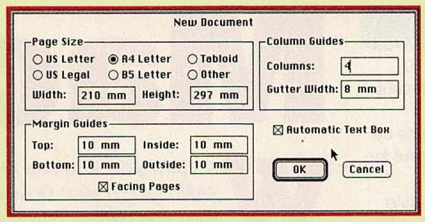
On its own, *QuarkXPress* provides a pretty comprehensive set of tools, but not quite enough for specialist needs. These are catered for by its extensible architecture – both Quark and third-party suppliers produce *XPress* XTensions for a variety of purposes. For example, *QuarkImmedia*, reviewed on page 76, is an XTension, as is *Pianzhang*, a specialised application for the automated layout of very long, structured documents like books.

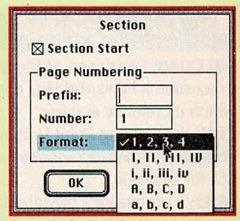
There are countless smaller XTensions which do everything from displaying pop-up page-navigation tools to random text generation (for sample layouts). If you go to the Quark site at **http://www.quark.com/** you can look at Quark's own FTP archive of downloadable XTensions. There's also a list of third-party suppliers, complete with links to their sites.

Once again, *XPress* is not alone in having a plug-in architecture – *PageMaker* boasts a similar facility. But XTensions can extend the functionality of *XPress* far more, making it hugely powerful and almost infinitely customisable to your needs.

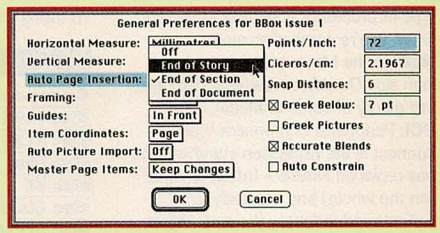


Most imported images will be either TIFFs (bitmaps) or EPS (vector-based PostScript) images. In both cases, *XPress* displays a low-res preview image on the page and maintains a link to the original. The Picture Usage window helps you check the status of external images before you print the document.





Documents can have asymmetric 'facing' pages, any number of columns and automatic page numbering using Arabic, Roman or alphabetic characters. The document can also be set to keep adding pages as you import long text files.



Rivals

Unless, that is, you're on a budget. With a street price of around £750, depending on where you shop, *XPress 3.32* costs 50% more than *PageMaker 6.5* while offering much less flexibility (without specialised XTensions). *PageMaker*, after all, can export *Adobe Acrobat* PDF files as well as finished Web pages and comes with a whole slew of gadgets which you have to pay extra for if you opt for *XPress*.

That's the main problem – *QuarkXPress* ownership is expensive. *PageMaker* is cheaper, better equipped and can do anything that *XPress* can. But then it all comes down to usability and feel. *PageMaker* is popular with many designers, thanks to its clean look and more free-form page-building tools, but if you need to keep modifying, editing and writing material even while pages are being built, *XPress* is much, much better.

Don't imagine *QuarkXPress* and *PageMaker* have it all to themselves, either. They're under siege from rapidly improving smaller programs and the volatile and unpredictable publishing market. The innovative QuickDraw-GX-based *UniQorn* can now export laid-out pages as Java applets, which recreate layouts perfectly within your Web browser. Even the modest *ClarisWorks*, in its latest incarnation, supports multi-column layouts, linked text boxes, text wrap around images, gradient fills, text effects, diagrams, bitmap images – and all without migrating to other applications. If you're printing pages at home or in the office, you don't need all the facilities of the DTP heavyweights from Quark and Adobe.

With the release of *QuarkImmedia*, though, Quark may well have done enough to stay ahead in the professional publishing game. *Immedia* offers a powerful yet simple set of tools for creating complex professional multimedia presentations based on existing *XPress* skills and layout tools. It knocks Adobe's mildly interactive PDF format into a cocked hat. (See our full review on page 76.)

Even though arguments about which program is best may still rage, if you want to be compatible with 90% of the publishing industry and develop saleable skills, the choice gets a whole lot simpler. In fact, it isn't really a choice at all, although you may need to spend some time working out which bank offers the cheapest overdrafts. **MF**

QuarkXPress 3.32

It costs plenty, but it's robust, powerful, logical and flexible, right up until that final deadline – and *Immedia* opens up a whole new market.

Features	**82%**
Ease of use	**93%**
Documentation	**95%**
Value for money	**75%**

MF rating 88%

Mac Facts

What processor is in your Mac? How much RAM can you add? Does it have a Floating Point Unit (FPU) – or can you add one? With so many models over the years, it can be hard to keep track. Whether you want to know if you can use a program we've reviewed this issue or need to know what upgrades you can fit, our complete table of every Mac model ever should help. Current models are coloured blue-green.

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
Compact Macs						
Mac 128K	68000	8MHz	128K/not exp	None	No	N/A
Mac 512K	68000	8MHz	512K/not exp	None	No	N/A
Mac Plus	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE	68000	8MHz	1Mb/4Mb	1 PDS	No	N/A
Mac Classic	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE/30	68030	16MHz	1Mb/128Mb	1 PDS	Yes	N/A
Classic II (= Performa 200)	68030	16MHz	2Mb/10Mb	None	Optional	N/A
Color Classic	68030	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Mac II Series						
Mac II	68020	16MHz	1Mb/68Mb	6 NuBus	Yes	N/A
Mac IIx	68030	16MHz	1Mb/128Mb	6 NuBus	Yes	N/A
Mac IIcx	68030	16MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvi	68030	16MHz	4Mb/68Mb	3 NuBus	Optional	N/A
Mac IIsi	68030	20MHz	1Mb/65Mb	1 NuBus/PDS	Optional	N/A
Mac IIci	68030	25MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvx (= Performa 600)	68030	32MHz	4Mb/68Mb	3 NuBus	Yes (not 600)	N/A
Mac IIfx	68030	40MHz	1Mb/128Mb	6 NuBus, 1 PDS	Yes	N/A
LCs						
Mac LC	68020	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Mac LC II (= Performa 400)	68030	16MHz	4Mb/10Mb	1 LC-PDS	Third-party	N/A
Mac LC III (= Performa 450)	68030	25MHz	4Mb/36Mb	1 LC-PDS	Optional	N/A
Performas (non-PowerPC)						
Performa 475 (= LC475)	68LC040	25MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Performa 630 (= LC630)	68LC040	33MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Centris series						
Centris 610	68LC040	20MHz	4Mb/68Mb	1 NuBus/PDS	Upgrade	N/A
Centris 650	68040	25MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra series						
Quadra 610	68040	25MHz	4Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 660AV	68040	25MHz	8Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 700	68040	25MHz	4Mb/64Mb	2 NuBus, 1 PDS	Yes	N/A
Quadra 900	68040	25MHz	4Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 650	68040	33MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 800	68040	33MHz	8Mb/146Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 950	68040	33MHz	8Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 840AV	68040	40MHz	8Mb/128Mb	3 NuBus	Yes	N/A
PowerMac Performas						
Performa 5200	PPC 603	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 5260	PPC 603	100MHz	12Mb/64Mb	1 PDS	Yes	**£1,385**
Performa 6320	PPC 603	100MHz	12Mb/64Mb	1 PDS	Yes	**£1,431**
Performa 6200	PPC 603e	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 5300	PPC 603e	100MHz	8Mb/64Mb	1 PDS	Yes	N/A
Family Mac 5400/160	PPC 603e	160MHz	16Mb/136Mb	1 PCI	Yes	**£1,801**
Family Mac 5400/180	PPC 603e	180MHz	16Mb/136Mb	1 PCI	Yes	**£2,129**
Home Office 6400/180	PPC 603e	180MHz	16Mb/136Mb	2 PCI	Yes	**£1,969**
Home Office 6400/200	PPC 603e	200MHz	16Mb/136Mb	2 PCI	Yes	**£2,033**
Creative Studio 6400/200	PPC 603e	200MHz	24Mb/136Mb	2 PCI	Yes	**£2,865**
Power Macintoshes						
PowerMac 6100/60	PPC 601	60MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 6100/66	PPC 601	66MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 7100/66	PPC 601	66MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/75	PPC 601	75MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7100/80	PPC 601	80MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/80	PPC 601	80MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/90	PPC 601	90MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7500/100	PPC 601	100MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 8100/100	PPC 601	100MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/110	PPC 601	110MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 4400/160	PPC 603e	160MHz	16Mb/160Mb	3 PCI	Yes	**£1,108**
PowerMac 8200/120	PPC 601	120MHz	16Mb/256Mb	3 PCI	Yes	**£1,280**
PowerMac 8500/120	PPC 604	120MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 9500/120	PPC 604	120MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A

Mac Facts explained

68LC040: a variation of the 68040 processor. It lacks the FPU component which its relative enjoys.
FPU: the Floating Point Unit speeds up complex maths calculations – useful for 3D, for example.
MHz: a processor's megahertz rating gives an indication of its speed, but the type of processor is equally important when you're comparing models.
NuBus: the Mac's traditional expansion slot. Outdated now, but there are still plenty of cards available.
PCI: Peripheral Component Interconnect is the expansion standard that has replaced NuBus – faster, cheaper (on the whole) and not likely to become redundant in the near future.
PC Card: formerly known as PCMCIA, it's the industry-standard expansion slot for portables. Lots of options.
PDS: the Processor Direct Slot is often used to upgrade your Mac's processor, but you can get other types of card, too.
PPC: PowerPC is the standard processor for all Macs nowadays. Broadly speaking, the 604e is the fastest, with the 604, 601, 603e and 603 trailing it – but compare those MHz ratings, too.

Quadra 700

In October 1991, Apple released the first 68040-based Macintosh – the Quadra 700. It cost a whopping £4,695 yet ran at a measly 25MHz. It was supplied with only 4Mb of RAM (expandable to 64Mb) and had one PDS and two NuBus slots. Compared to previous Macs, it went like a rocket.

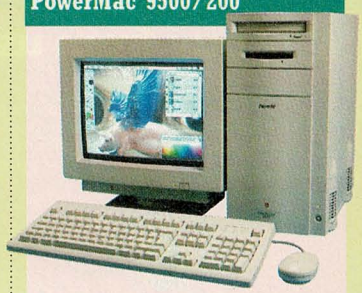
The Quadra 700 was on sale for around 18 months, up until March 1993, and during that time the Quadra series developed to include the short-lived Quadra 900 (25MHz, expandable to 256Mb RAM), the 33MHz 950, the 33MHz Quadra 800 (very fast RAM chips) and the fastest ever non-PowerMac, the 40MHz Quadra 840AV, which came with built-in 16-bit stereo sound and video support.

The 840AV ran 60 per cent faster than the original Quadra 700, came with 8Mb of RAM instead of 4Mb and was expandable to 128Mb of RAM instead of 64Mb. And, together with its desktop video hardware, it cost £876 less. All in the space of two years.

The Quadra series was superseded by the cheaper three-model Centris range. The top-of-the-range Centris 660AV, launched in October 1993, ran at the same speed as the 1991 Quadra 700, boasted full desktop video hardware and twice the RAM, and cost £2,404 less. Ouch.

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
PowerMac 9500/132	PPC 604	132MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A
PowerMac 7600/132	PPC 604e	132MHz	16Mb/512Mb	3 PCI	Yes	£1,651
PowerMac 8500/180	PPC 604e	180MHz	16Mb/512Mb	3 PCI	Yes	£2,261
PowerMac 9500/200	PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	£3,536
PowerMac 9500/180 MP	4xPPC 604e	180MHz	32Mb/768Mb	6 PCI	Yes	£4,367
DayStar Mac-compatibles						
Genesis MP LT 400+	2xPPC 604e	200MHz	0Mb/1.5Gb	6 PCI	Yes	£4,346
Genesis MP600	4xPPC 604e	150MHz	0Mb/1.5Gb	6 PCI	Yes	N/A
Genesis MP720+	4xPPC 604e	180MHz	0Mb/1.5Gb	6 PCI	Yes	£8,400
Genesis MP800+	4xPPC 604e	200MHz	0Mb/1.5Gb	6 PCI	Yes	£9,869
Motorola Mac-compatibles (All available in desktop ("d") or mini-tower ("t") configuration)						
StarMax 3160	PPC 603e	160MHz	d16Mb, t32Mb/160Mb	d 3 PCI, t 5 PCI	Yes	d£1,291, t£1,585
StarMax 3200	PPC 603e	200MHz	d16Mb, t32Mb/160Mb	d 3 PCI, t 5 PCI	Yes	d£1,644, t£1,938
StarMax 4160	PPC 604e	160MHz	d16Mb, t32Mb/160Mb	d 3 PCI, t 5 PCI	Yes	d£2,466, t£2,701
StarMax 4200	PPC 604e	200MHz	d16Mb, t32Mb/160Mb	d 3 PCI, t 5 PCI	Yes	d£2,819, t£3,054
Power Computing Mac-compatibles						
Power 100	PPC 601	100MHz	16Mb/256Mb	3 NuBus	Yes	£939
PowerCenter 120	PPC 604	120MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerCenter 132	PPC 604	132MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerCenter 150	PPC 604	150MHz	16Mb/256Mb	3 PCI	Yes	£1,879
PowerWave 150	PPC 604	150MHz	16Mb/512Mb	6 PCI	Yes	N/A
PowerCenter 166	PPC 604	166MHz	16Mb/512Mb	3 PCI	Yes	£2,114
PowerTower 180	PPC 604	180MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerTower 200	PPC 604	200MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerTower Pro 200	PPC 604e	200MHz	16Mb/1Gb	6 PCI	Yes	£3,049
PowerTower Pro 225	PPC 604e	225MHz	16Mb/1Gb	6 PCI	Yes	£3,284
PowerTower Pro 225 MP	2 x PPC 604e	225MHz	16Mb/1Gb	6 PCI	Yes	£4,459
Umax Mac-compatibles						
Apus 2000/166	PPC 603e	166MHz	16Mb/272Mb	2 PCI	Yes	£998
Apus 3000/200	PPC 603e	200MHz	16Mb/272Mb	3 PCI	Yes	£1,526
Apus 3000/240	PPC 603e	240MHz	16Mb/272Mb	3 PCI	Yes	£1,879
Pulsar 150 (was Pulsar 1500)	PPC 604	150MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 166	PPC 604e	166MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 200	PPC 604e	200MHz	16Mb/1Gb	6 PCI	Yes	£3,049
Pulsar 225	PPC 604e	225MHz	16Mb/1Gb	6 PCI	Yes	£3,519
Pulsar 180 MP	2xPPC 604e	180MHz	16Mb/1Gb	6 PCI	Yes	£4,111
Portables						
Macintosh Portable	68000	16MHz	2Mb/9Mb	Modem slot	No	N/A
PowerBook 100	68000	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 140	68030	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 170	68030	25MHz	4Mb/8Mb	Modem slot	Yes	N/A
PowerBook 145	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 145b	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 160	68030	25MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 150	68030	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook 165c	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 180	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 180c	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 165	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 520	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 520c	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 540	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 540c	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 190	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 190cs	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 5300	PPC 603e	100MHz	8Mb/56Mb	2 PC card	Yes	N/A
PowerBook 5300c	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300ce	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300cs	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	£1,609
PowerBook 1400cs/117	PPC 603e	117MHz	12Mb/64Mb	2 PC card	Yes	£2,080
PowerBook 1400c/117	PPC 603e	117MHz	16Mb/64Mb	2 PC card	Yes	£3,033
PowerBook 1400c/133	PPC 603e	133MHz	16Mb/64Mb	2 PC card	Yes	£3,466
Duos						
PowerBook Duo 210	68030	25MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 230	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 250	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 270c	68030	33MHz	4Mb/32Mb	Modem slot	Yes	N/A
PowerBook Duo 280	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 280c	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 2300c	PPC 603e	100MHz	8Mb/56Mb	Modem slot	Yes	£3,310
Duo Docking Stations						
PowerBook Duo MiniDock	-	-	-	None	No	N/A
PowerBook Duo Dock	-	-	-	2 NuBus	Optional	N/A
PowerBook Duo Dock II	-	-	-	2 NuBus	Yes	N/A
PowerBook Duo Dock Plus	-	-	-	2 NuBus	No	£798

PowerMac 9500/200



There's never a right time to buy a Mac – you can be sure that whichever model you choose, in two years' time you'll get twice the performance for half the money with a new one.

For example, for the cost of the Quadra 700 in 1991, you could now get a PowerMac 9500/200 (£4,001).

On the RAM front, you get 32Mb as standard, upgradable to 768Mb. It also has five empty PCI slots, an 8x CD-ROM drive and a 2Gb hard drive. In terms of sheer speed, the 9500/200 is about 11 times faster than the Quadra 700, which had a hard disk with barely enough room to install System 7.5 (not that there was enough RAM to run it).

What's that you say? It's not a fair comparison? Indeed it isn't. The Quadra 700 cost rather more when it was launched. The difference (£694) could, at today's prices, buy 64Mb of RAM for your 9500/200, a copy of *Photoshop 4* or even a week-long holiday for two.

PowerPC Performas

The range of Performas with PowerPC chips offers several minor variations with essentially the same computing power. The 5200 and 6200 are the same Mac in different cases – the "5" denotes an all-in-one case, while "6" models separate the CPU and monitor. Later models like the 5260 and 6320 follow this convention but boast slightly faster processors. In our table, look for the model number closest to yours.

Contacts

For models still officially on sale, we've listed the current estimated street prices in the UK. All prices include VAT.

Prices are changing fast at the moment, and there are plenty of bargains to be had as older models are phased out. Contact the supplier below for the range you're interested in.

Plenty of new machines were announced at January's Expo in San Francisco, including ambitious Mac-compatibles from Power and Umax. You'll find all the details in this issue's MACFORMAT News on page 16.

- **Apple Computer**
  Apple: 0800 127753
- **DayStar: Computers Unlimited:**
  0181 358 5857
- **Motorola**
  Motorola: 01628 763200
- **Power Computing**
  MCM: 0171 724 4104
- **Umax**
  IMC Computer: 01344 871344

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This is provided the product is new and is the same model, specification and version, is supported to the same post-sale levels we offer, is in stock, has the same warranty and is available from the competitor on the same day of purchase. In some cases where margins are particularly tight we may require to see a written quotation from the other party. Unfortunately, the price promise is not applicable to sales where manufacturer backed Corporate or Educational discounts are quoted.

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Over 96% of our products are in stock, waiting to be delivered direct to you by the next day.

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If we can't deliver within 24 hours, we'll tell you the exact situation and when you will receive it.

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FRIENDLY PEOPLE

At the end of the day, it's the approach and attitude of our team at Performance Direct that goes a long way to winning your business.

Free Tech Support

Our 'hot line' technical support team are all certified Apple Engineers with access to vast resources of technical information.

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They are here to help and will guide you through any technical queries quickly and effectively.

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We always put our customers first – we're on your side!

Daystar n-POWER cards

DAYSTAR

Daystar n-POWER cards offer a powerful upgrade path for the PowerMac 7500, 7600, 8500 & 9500s.

Daystar n-POWER £1249

Description	Prices
Daystar n-POWER 350/180Mhz	£1249.00
Daystar n-POWER 400/200Mhz	£1399.00

Verbatim Media

CDR Disks £5.99

Description	Prices
3.5" 512 bytes 128Mb Opt. Cart.	£7.99
3.5" 512 bytes 230Mb Opt. Cart.	£7.49
5.25" 1024 bytes 2.6Gb Opt. Cart.	£41.99
4mm 90m DAT Tapes	£4.50
4mm 120m DAT Tapes	£12.49
74 min CD recordable 650Mb	£5.99

Verbatim Toner

Verb. Toner £39.95

Description	Prices
Personal LS, SC, NT, NTR	£40.95
Personal 300, 320	£47.95
16/600 PS, Pro 600, 630	£55.95
IISC, INT, IIN TX, III, IIg	£39.95

Labtech

Labtec

A complete range of sound systems from Labtec – a world leader in speaker technology. Whatever your needs Labtec has the speaker for you!

Labtec Speakers £37

Description	Prices
Labtec 1020 9watts/50Hz/20khz	£37.00
Labtec 1022 10watts/45Hz/20khz	£43.00
Labtec 1224 10watts/45Hz/20khz	£59.00

HP Printers

Choose from the wide range of HP printers for the Mac, ranging from the 340 portable inkjet, through the colour inkjet 870cxi, up to lasers for all sizes of company networks.

DeskWriter 870cxi £319

Description	Prices
HP DeskWriter 340 Col Inkjet 3 pages per min	£159.00
HP DeskWriter 870cxi Col Inkjet 8 pages per min	£319.00
HP LaserWriter 6MP Laser 8 pages per min	£649.00
HP LaserWriter 4MV A3 Laser 16 pages per min	£2099.00
HP LaserWriter 5siMX A3 Laser 24 pages per min	£2869.00

Radius Card

radius

Rad. Thunder Col £1299

Graphics cards designed for layout, creative and graphics professionals, with the highest resolutions available.

Description	Prices
Radius ThunderColour 30/1600	£1599.00
Radius ThunderPower 30/1920	£1299.00

Apple Printers

Apple printers give the best quality output in either colour or black whether you're working on a company network, or at home.

LaserWriter 4/600PS £599

Description	Prices
Stylewriter 1500	£219.00
Colour Stylewriter 2500	£289.00
LaserWriter 4/600PS	£599.00
LaserWriter 12/640PS	£1099.00
LaserWriter 16/600PS	£1399.00
Colour LaserWriter 12/600PS	£4499.00

Agfa Scanners

AGFA

Agfa rank among the world's leading photographic and imaging companies.

StudioScan £429

Description	Prices
SnapScan (600x300dpi)	£249.00
StudioScan (800x400dpi)	£429.00
StudioStar (1200x600 dpi)	£599.00
Arcus II (1200x600dpi)	£1459.00
DuoScan (1000x2000 dpi)	£2899.00

UMAX Scanners

UMAX is a technology leader in the design and manufacture of graphics-related products. The company produces a full line of desktop scanners for the PC and Macintosh.

SE6 Vista £199

Description	Resolution	Tran Adp.	Photoshop	Prices
S6E Vista	600x300dpi	Optional	Option	£199.00
S12 Vista	1200x600dpi	Optional	Option	£395.00
Powerlook II	1200x600dpi	Yes	Full	£1449.00
Powerlook 2000	1000x2000dpi	Yes	Full	£2995.00
Mirage A3	1800x800dpi	Yes	Full	£5495.00

Fuji DS-7 Camera £499

Visioneer Paperport

Visioneer Paperport £259

Fuji DS-7 Digital Camera

Fast Ethernet PCI £99

5 Port Hub £89

SMC Ethernet

SMC

Description	Prices
EtherPower 10/100 Dual Chan. Ethernet PCI Network Card	£call
SMC Hub 100-12 Port	£1199.00
SMC Hub 100-24 Port	£1949.00
EtherPower 10/100 Fast Ethernet PCI Network Card	£99.00
SMC EtherEZ Hub 5-Port	£89.00
SMC EtherEZ Hub 8-Port	£139.00
SMC EtherEZ Hub 16-Port	£279.00
SMC Ether Adapter Etherpower PCI Combo Card	£69.00

Desktop V.34 Modem

- fully featured
- easy to use
- affordable
- fax and internet software

V.34 Modem (PC) £79

Description	Prices
Global Village 33.6 Internet Modem	£119.00
Modular Tech. V.34 Modem (Mac)	£89.00
Modular Tech V.34 Modem (PC)	£79.00

Hermstedt ISDN

Leonardo XL £1495

Description	Prices
Leonardo XL PCI 4 Channel ISDN card PCI	£1495.00
Leonardo XL Nubus 4 Channel ISDN card Nubus	£1495.00
Leonardo SP PCI 2 Channel ISDN card PCI	£995.00
Leonardo SP Nubus 2 Channel ISDN card Nubus	£995.00
Pinocchio Std LC Card 2 Channel ISDN card LC Machine	£595.00
Pinocchio Std LC Card 2 with fax modem	£895.00
Hermstedt Andante Ext. ISDN adapter - no slot	£495.00
Hermstedt Pan Add on 36.6k fax/modem for XL and SP board	£350.00

Hermstedt are world leaders in Mac ISDN Technology with over 40,000 installed users worldwide. 4-Sight compatible.

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- The size of the Paperback book
- Mac & PC versions
- Two Colours available - Yellow or Blue

Xyratex 540Mb **£259**

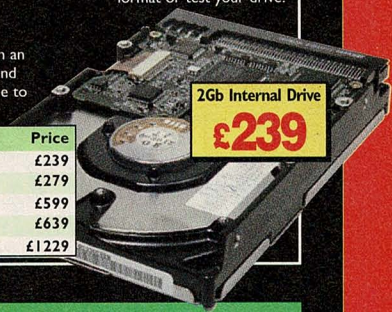
Description	Prices
Xyratex 540Mb MaxIT Drive (incl. 3 disks on blue MaxIT)	£259
Xyratex 540Mb Cartridge	£29

Hard Drives

2Gb External Drive **£279**

Our product team at Performance Direct put painstaking time and effort into sourcing the best possible products for your needs. An example is our high performance drive mechanisms sourced from world leading manufacturers like IBM, Seagate, and Quantum. We burn in, preformat and test every drive with Charismac's award winning Anubis utility software to ensure reliability. We even ship you a free copy of Anubis with every drive so that you can partition, re format or test your drive.

Every external storage product is delivered to you with an active SCSI terminator to ensure perfect termination and we include a free top quality double-shielded SCSI cable to eliminate data transmission problems.



2Gb Internal Drive **£239**

Description	Price
2Gb SCSI - 2 AV Internal Drive	£239
2Gb SCSI - 2AV External Drive	£279
4Gb SCSI - 2AV Internal Drive	£599
4Gb SCSI - 2AV External Drive	£639
9Gb SCSI - 2AV	£1229

xyratex Optical Drives

2.6Gb Optical **£459**

- 640Mb & 2.6 GB Capacity
- Reusable, low-cost storage
- Industry standard removable cartridges, backward compatible
- Attachment to Macs PCs very straightforward
- Includes software
- Robust, removable, excellent performance

Description	Prices
X3000 Optical Drive	£459.00
X5000 Optical Drive	£1139.00

640Mb Drive **£439**

Optical Drives Maxoptix

- Unlimited capacity on re-writable optical disks
- Data transfer rates of over 4Mb/sec
- Transport data safely on rugged, removeable cartridges
- Access information at near hard disk speeds

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Internal 640Mb Optical	£439.00
External 640Mb Optical	£489.00
Internal 2.6Gb Optical	£1099.00
External 2.6Gb Optical	£1199.00

2-4 Speed CD Writers

Plasmon 4-speed **£525**

Make and distribute your own audio, video or data CDs quickly and easily. Each CD holds 650Mb with a shelf life of 100 years! Reads & writes at 4x speed, Mac & PC compatible, backup for less then 1p per Megabyte !

Description	Prices
Formac 4 speed CD Writer & Toast Pro s/w	£525
Plasmon 4 speed CD Writer	£579
Verbatim CDR Disk	£5.99

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- Fully compatible with all 3.5" 128Mb and 230Mb MO disks
- Almost as fast as your hard disk
- Exceptional performance and reliability
- 40 year media life

640Mb Opti Drive **£479**

Description	Prices
Verbatim 640Mb Optical Drive	£479.00
Verbatim 640Mb Optical Cartridge	£28.75

8x Speed CD Rom

- Fast 8 x Speed Drive
- Photo CD Compatible
- Free SpotCD software for extra speed

8 speed CD ROM **£159**

Description	Price
8 Speed CD ROM	£159.00

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MEMORY	8Mb	16Mb	32Mb	64Mb
72 Pin Simms	£20	£45	£89	£249
168 Pin Dimms	£26	£45	£105	£195
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- Ideal for multimedia, video editing, audio & video

Description	Prices
Internal 1Gb Jaz Drive	£279.00
External 1Gb Jaz Drive	£299.00
1Gb Jaz Cartridge	£63.00
External Zip Drive	£119.00
Iomega 100Mb Zip Cartridge	£9.99

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4-16Gb DAT Drive **£589**

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- Reliable "set it and forget it" operation

Description	Prices
4-16Gb DAT Drive	£589.00
90m DAT Tape	£4.99
120m DAT Tape	£14.99

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Lowest prices

Software

Adobe Acrobat Pro 3 for Mac	£ 145.00	Insignia SoftWin 3 + 8Mb Simm	£ 189.00
Adobe ATM 4	£ 42.00	Insignia SoftWindows 95	£ 189.00
Adobe Collection	£ 549.00	Insignia S/W 95 + 8Mb Dimm	£ 209.00
Adobe Illustrator 6.0	£ 269.00	Insignia S/W 95 + 8Mb Simm	£ 209.00
Adobe Pagemaker 6.5	£ 425.00		
Adobe Pagemill 1 for Mac	£ 69.00		
Adobe Pagemill 2 for Mac	£ 62.00		
Adobe Photoshop 4 for Mac	£ 399.00		
Adobe Sitemill	£ 129.00		
Adobe Streamline 3.1	£ 99.00		
Aladin Suffit Deluxe 4	£ 55.00		
Alien Skin Black Box Plug-in	£ 55.00		
		Macromedia Director for Mac	£ 739.00
		Macromedia Dir. Studio Mac	£ 859.00
Claris Draw for Mac	£ 99.00		
Claris E-Mailer 1.1 for Mac	£ 53.00		
Claris Filemaker Pro 3 for Mac	£ 152.00		
Claris Filemaker Pro Server Mac	£ 759.00	Macromedia Freehand for Mac	£ 349.00
Claris Homepage 2 for Mac	£ 70.00	Macromedia Freehand Studio Mac	£ 429.00
Claris Organiser 2 for Mac	£ 53.00	Metal Tools Bryce 2	£ 135.00
Claris Works 4 for Mac	£ 99.00	Metal Tools Convolver	£ 95.00
ClarisImpact for Mac	£ 99.00	Metal Tools Goo	£ 39.00
Connectix Ram Doubler	£ 39.00	Metal Tools KPT 3	£ 95.00
Corel Draw Suite	£ 279.00	Metal Tools Vecter Effects	£ 95.00
Corel Draw Suite Upgrade	£ 89.00	Microsoft Office for the Mac	£ 369.00
Corel PhotoCDs 10pack	£ 29.99	Persuasion 4 for Mac	£ 199.00
Corel Web Gallery	£ 37.99	Photo Deluxe 1 for Mac	£ 72.00
		Plasmon InCat for Mac and PC	£ 79.00
		Plasmon Toast for Mac	£ 119.00
		Premier 4.2 for Mac	£ 419.00
		Quark Immedia	£ 679.00
		QuarkXpress 3.32	£ 659.00
		Retrospect Backup Software	£ 99.00
		Soft Numbers MYOB	£ 155.00
		Strata Studio Pro Blitz 1.75	£ 659.00
Dantz Retrospect 3	£ 115.00		
Dantz Retrospect Remote 3	£ 225.00		
Dataviz MacLink Plus Translators	£ 83.00		
Deneba Canvas 5	£ 269.00		
Fractel Detailer	£ 265.00		
Fractel Painter 4	£ 309.00		
Fractel Poser	£ 139.00	Symantec Norton 3.2	£ 69.00
Insignia SoftWindows 3	£ 167.00	Symantec Sam 4.5	£ 59.00
Insignia SoftWin 3 + 8Mb Dimm	£ 189.00	Symantec Suitcase 3	£ 52.00

PowerBook 1400

- 117 or 133Mhz 603e
- 12Mb or 16Mb RAM (up to 64Mb)
- 750Mb or 1.1Gb HD
- large 11.3in SVGA display (active matrix on 1400c)
- Internal 6 speed CDRom
- PC Card expansion slot

Description	Prices
1400cs/117 12/750	£1629
1400cs/117 16/750/CD & Colour SW2200 & case	£2149
1400c/117 16/1100/CD (active matrix screen)	£2399
1400c/133 16/1100/CD (active matrix screen)	£2699

Motorola StarMax

Description	Processor	Configuration	Prices
3000/180 Desktop	180Mhz 603e	16/1.2Gb/CD	£ 1099
3000/180 Minitower	180Mhz 603e	32/2.5Gb/CD	£ 1349
3000/200 Desktop	200Mhz 603e	16/1.2Gb/CD	£ 1399
3000/200 Minitower	200Mhz 603e	32/2.5Gb/CD	£ 1649
4000/160 Desktop	160Mhz 604e	16/1.2Gb/CD	£ 2099
4000/160 Minitower	160Mhz 604e	32/2.5Gb/CD	£ 2299
4000/200 Desktop	200Mhz 604e	16/1.2Gb/CD	£ 2399
4000/200 Minitower	200Mhz 604e	32/2.5Gb/CD	£ 2599

Apple Monitors

Apple monitors offer a choice of cost and performance for different budgets and applications.

Description			Prices
Multiscan 15AV	15in	1024x768pixels	£359
Multiscan 1705	17in	1024 x768pixels	£449
Multiscan 1710 Trinitron	17in	1280x1024pixels	£549
Multiscan 1710AV Trinitron	17in	1280x1024pixels	£599
Multiscan II 20 Trinitron	20in	1280x1024 pixels	£1199

Viewsonic Monitors

Description			Prices
Viewsonic 14E 641	14in	800x600 pixels	£169
Viewsonic 15 GS	15in	1024 x768 pixels	£249
Viewsonic 17 GS	17in	1152x870 pixels	£439
Viewsonic 20G	20in	1600x1200 pixels	£799
Viewsonic PT770	17in	1280x1024 pixels	£559
Viewsonic PT810	21in	1600x1280 pixels	£1179
Viewsonic P810	21in	1600x1280 pixels	£1139

Viewsonic – better monitors at a better price.

Mitsubishi Monitors

The DIAMONDTRON CRT takes Trinitron™ technology to new levels of excellence delivering more accurate, sharper images. Mitsubishi offers a 3 year return to base warranty, with 24-hour replacement in the first year.

Description				Prices
Diamond Scan 15HX	15in	1024x768	FST	£259
Diamond Scan 17HX	17in	1024 x1024	FST	£call
Diamond Pro 87TXM	17in	1280x1024	Diamondtron	£479
Diamond Pro 91TXM	21in	1600x1280	Diamondtron	£999

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Formac Monitors

Formac manufacture the very latest technology within the Graphic card, monitor and memory storage markets, supplying quality, innovative products for the graphics professional.

Description	Prices
ProNitron 17/400 17" Trin. MultiScan 1280x1024/75Hz	£489
ProNitron 20/600 20" Trin. MultiScan 1600x1280/72 Hz	£999
ProVision 4/60 PCI Card 128 Bit 4Mb 1920x1080/72 Hz	£299
ProVision 4/80 PCI Card 128 Bit 8Mb 1920x1080/72Hz	£399
ProFormance 80 PCI Card 128 Bit 8Mb 1920x1080/72Hz	£699

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NEW

PowerMac 4400/160

- 160 PPC 603e processor
- 16Mb RAM (upto 96Mb)
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- Internal 8xCDRom
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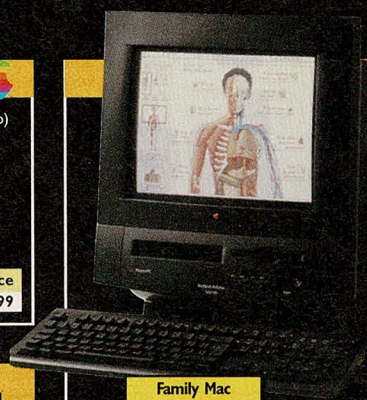
- Includes mouse & keyboard

PM 4400 only **£899**

Description	Price
4400/160Mhz 16/1200/CD	£899



Performa Range

- 160, 180 or 200Mhz PPC 603e processor
- 16 or 24Mb RAM (upto 136Mb)
- 1.6 or 2.4Gb Hard Drive
- Internal 28.8k modem & 8xCDRom
- Built in 15in AV monitor on Performa 5400 (832x624 pixels)
- 1024x768 pixels on Performa 6400
- Mouse & keyboard
- Apple TV option (standard on 5400/180)
- FREE software, including Claris Works, Apple Internet Kit, Grolier Encyclopedia, and Disney CD Collection

Family Mac **£1449**

Home Office **£1349**

Description	Prices
Family Mac 5400/160 16/1.6Gb/CD	£1449
Family Mac 5400/180 16 1.6Gb/CD/TV	£1669
Home Office 6400/180 16/2.4Gb/CD	£1349
Home Office 6400/200 16/2.4Gb/CD	£1599
Creative Studio 6400/200 24/2.4Gb/CD	£1999

PowerMac 8200/120

- 120Mhz PPC 601
- 16Mb RAM (upto 256Mb)
- 1.2Gb Hard Drive
- 2Mb Fast 64bit VRAM upto 4Mb (1280x1024)
- Internal 8x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache
- FREE software, including MS Office 4.21 and Apple Internet Kit

PM 8200 only **£1049**

Description	Prices
8200/120 16/1200/CD & MS Office	£1049

PowerMac 7600/132

- 132Mhz PPC 604 (upgradable to 250Mhz)
- 16Mb RAM (upto 512Mb)
- Fast 1.2Gb Hard Drive
- 2Mb Fast 64bit VRAM upto 4Mb (1280x1024)
- Fast SCSI (up to 10Mb/s)
- Internal 8x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache
- FREE MS Office 4.21 & Apple Internet Kit

PM 7600 only **£1349**

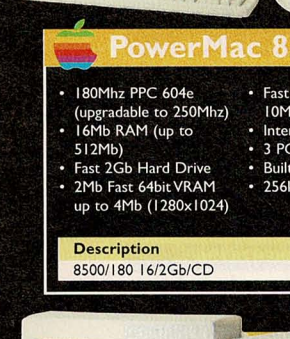
Description	Price
7600/132 16/1.2Gb/CD & MS Office	£1349

UMAX Apus

Apus 2000/166 **£849**

- Choice of 3 Models:
- 166 to 240Mhz PPC 603e processor
- 16Mb RAM, up to 272Mb
- 1.2Gb to 2Gb Drive
- 8xspeed SCSI CD ROM
- Includes Keyboard and Mouse

Description	Prices
Apus 2000/166 16/1.2Gb/CD	£849
Apus 3000/200 16/2Gb/CD	£1299
Apus 3000/240 16/2Gb/CD	£1499

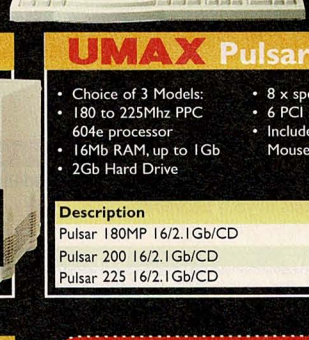


PowerMac 8500/180

- 180Mhz PPC 604e (upgradable to 250Mhz)
- 16Mb RAM (up to 512Mb)
- Fast 2Gb Hard Drive
- 2Mb Fast 64bit VRAM up to 4Mb (1280x1024)
- Fast SCSI bus (up to 10Mb/s)
- Internal 8x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache

PM 9500 only **£1899**

Description	Price
8500/180 16/2Gb/CD	£1899



UMAX Pulsar

- Choice of 3 Models:
- 180 to 225Mhz PPC 604e processor
- 16Mb RAM, up to 1Gb
- 2Gb Hard Drive
- 8 x speed SCSI CD ROM
- 6 PCI slots
- Includes Keyboard and Mouse

Pulsar 200 16/2 **£2595**

Description	Prices
Pulsar 180MP 16/2.1Gb/CD	£3195
Pulsar 200 16/2.1Gb/CD	£2595
Pulsar 225 16/2.1Gb/CD	£2995

PowerMac 9500

- One 200Mhz or Two 180Mhz PPC 604e
- 32Mb RAM (up to 768Mb)
- Fast 2Gb Drive
- 2Mb Fast 64bit VRAM upto 4Mb 1280x1024
- Fast SCSI (upto 10Mb/s)
- Internal 8x CD Rom
- 6 PCI expansion slots
- Built-in Ethernet
- 512k Level 2 cache

PM 9500/200 **£2799**

Description	Prices
9500/200 32/2Gb/CD	£2799
9500/180MP 32/2Gb/CD	£3399

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Buying Advice

When you buy goods by mail order, there are certain basic precautions you should take to protect yourself. The vast majority of transactions can be made to go smoothly and without problems, and when problems do occur, a few simple measures can make them much easier to sort out. Many of these precautions also apply when you're buying from a shop.

You need it by when?

If you need your new hardware or software to be delivered by a set date, you need to shop around a bit more carefully because you're not just searching on price, but availability too.

There's a common belief that mail order companies are obliged to supply you with the goods within 28 days of the date of your order. Not true. Normally they should, but in fact there is no maximum wait, unless you can demonstrate that the delay is "unreasonable" – and unless you stipulated a date with the supplier, you'd find it pretty hard to build a legal case against one that failed to supply a computer within 30 days, 60 days or even 90 days – especially if the supplier insists you were told that the item "would have to be ordered".

If you must have your new product by a set date, either buy it from a supplier that has it in stock, or buy from a retailer.

Other sensible precautions

- If you are buying goods worth more than £100 in total, use a credit card if you can. Then, if anything goes wrong, you'll be legally entitled to claim against the credit card company as well as the seller. Otherwise, pay by cheque or postal order. Never send cash – it is impossible to trace if it gets lost, you can't stop payment and, even if you have proof of posting, it is impossible to prove how much you sent. And keep records, including the name of the person who took your order, the time and an order number. And – obviously – keep all the receipts.
- Shop around for the best price. Always check what is included – how about packing and delivery, any necessary cables and so on? By law, an advert must state explicitly if VAT is *not* included in the price; if it doesn't, VAT *is* included. But this can be in the small print, so check carefully.
- When you buy in person, check that everything is there and that it all works properly before you leave the shop. Make sure all the connectors fit and get the whole system up and running. If you've ordered by mail, check the goods carefully when they arrive. Delivery companies often demand that you sign a slip saying you've received everything "in good order and condition", but it's impractical to expect them to wait while you check. However, you can add some note like "Accepted subject to inspection of contents"

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Buyer's guide to best buys

Here's how to find the best Mac hardware and software buys on the market, based on MACFORMAT's authoritative, independent product tests. If you want more information on any product, ring the contact listed or refer to our original review – if you need to order an issue you missed, turn to our back issues service on page 144.

The details listed are those of the current version of each product. All prices quoted are list prices (RRPs), *including* VAT – check the ads in this issue for the best current deals on whatever you're interested in. Where we reviewed an earlier version of a product, this is noted in the comment line. Although we quote the ratings from our original review, the comments about each item are based both on that review *and* how we see the product now.

QuarkXPress might be as good now as when we reviewed it in MACFORMAT 24, but the competition has come on.

Note that some details may have changed since we first reviewed these products – hardware in particular is updated and improved regularly. The information here has been thoroughly checked and is correct as we go to press, but prices and specifications can change at any time. We recommend you always make enquiries before you buy, to verify the product you're considering will meet your needs.

The MACFORMAT Buyer's Guide aims to provide you with a one-stop, up-to-date directory of Mac products worth buying. You can help keep it authoritative, by passing on any corrections or updated details you know of. Write to us at the editorial address on page 141, or e-mail **macformat @futurenet.co.uk** with "Buyer's Guide" in the subject line.

Storage media

What do you do when your hard disk is full to the brim? Or when you need to transport hundreds of megabytes of data and there's no fast network link available? External storage devices can provide much-needed extra storage capacity, or a portable storehouse for vast quantities of data.

Name	Price	Rating	Reviewed	Contact	Telephone
Electronique d2 2Gb AV HD	£512	90%	MF43	Electronique d2	0171 833 0009
MACFORMAT Classic Very stylish external hard disk with minimal documentation; basic driver software, but lightning-fast performance.					
Gasteiner 1Gb HD	£293	90%	MF34	Gasteiner	0181 345 6000
MACFORMAT Classic Fast, cheap and compact storage medium, but with a fan that gives neighbours the impression you're testing rockets in your bedroom.					
Iomega Zip Drive	£117	81%	MF43	Iomega	0800 973194
Well-established, cheap 3.5-inch 100Mb drive that feels a bit creaky and is looking rather slow in this day and age. It might still replace the floppy disk as the most ubiquitous form of storage.					
MicroNet 2.6Gb MO	£1,527	88%	MF43	MicroNet	01926 470460
Steel-cased MO drive. Speed good but not outstanding, and we had problems mounting a 1.3Mb cart.					
MicroNet Jaz Drive	£469	94%	MF43	MicroNet	01926 470460
MACFORMAT Classic The successor to the Zip drive uses astonishing 1Gb 3.5-inch cartridges and is fast, portable and cheap. Wonderful. This is a version MicroNet has licensed from maker Iomega.					
Olympus 230Mb PowerMO	£351	91%	MF43	Mac & More	01442 878900
MACFORMAT Classic Compact 3.5-inch magneto-optical drive that's neat, fast, cheap, and comes with a long-term warranty and good software.					
Olympus 2600 PowerMO	£1,878	89%	MF43	Mac & More	01442 878900
Fast and fairly compact, but pretty expensive compared to its rivals. Comes with a three-year warranty.					
ONE Tech 2.6 Optical Drive	£1,268	95%	MF34	MacTrix	0181 566 8988
MACFORMAT Classic Pretty fast, quiet, inexpensive and hard to fault. Oh, and the documentation is good too. If only they could do something about the styling. We reviewed the ONE Tech 1.3Gb MO.					
Performance Direct 2Gb	£375	92%	MF43	Performance Direct	01784 477477
MACFORMAT Classic Inexpensive and functional-looking hard disk which comes with excellent driver software and performs extremely well.					

Name	Price	Rating	Reviewed	Contact	Telephone
Quantum Fireball 1.2Gb HD	£269	88%	MF34	Performance Direct	01784 477477

Very quiet, very fast and a good-length SCSI cable. We reviewed the Quantum Fireball 1Gb HD.

SyQuest 230Mb	£270	94%	MF34	SyQuest	0131 339 2022

MACFORMAT Classic Uses 3.5-inch 135Mb cartridges and is extremely fast. The power supply is an annoying blob that sits next to the drive and the manual is tatty. We reviewed the SyQuest EZ135.

Xyratex 5000 2.6Gb	£1,409	90%	MF43	Performance Direct	01784 477477

MACFORMAT Classic Reasonable performance and good value for money from this big slab of a drive. Good documentation and generous-length SCSI cable.

Monitors

Not all monitors are the same. How sharp is your picture? Are the colours crisp and true to life? What resolutions are available? Is there any distortion? We've tested both 15-inch and 17-inch models from a number of manufacturers, and one thing they have in common is their weight. See page 58 for a look at the light, slim monitors of the future.

Name	Price	Rating	Reviewed	Contact	Telephone
AppleVision 1710	£927	92%	MF40	Apple	0800 127753

MACFORMAT Classic 17-inch monitor with easy controls, overscan (no black borders) and superb picture quality – plus colour calibration software.

Hitachi 17MVX Pro 2	£704	85%	MF40	Hitachi	0800 605 605

Good performance even at high resolutions, although setting up the screen could get fiddly and tedious.

Iiyama Pro 17-inch	£735	89%	MF40	Iiyama	01438 745482

The DiamondTron screen provides excellent quality even at the staggering maximum resolution of 1,600 x 1,200.

Mitsubishi 17HX	£758	83%	MF40	Mitsubishi	01707 276100

Good quality except at the highest resolution, and comes with an anti-moiré function. The manual could be more helpful.

Samsung 17GLsi	£822	84%	MF40	Samsung	0800 521 652

A 17-inch unit with a maximum resolution of 1,280 x 1,024 and a Trinitron tube. Excellent quality at all resolutions.

Sony 15sfII	£465	91%	MF40	Sony	0181 760 0500

MACFORMAT Classic Unusually for a 15-inch monitor, the Sony provides superb picture quality at all resolutions, thanks to its Trinitron tube, great-looking design and fuss-free setting up.

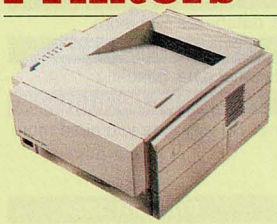
Sony 17sfII	£763	92%	MF40	Sony	0181 760 0500

MACFORMAT Classic Picture quality is excellent at all resolutions, setting up is easy and the manual is excellent – a rival to Apple's own AppleVision 1710.

Taxan Ergo Vision 730TCO	£735	84%	MF40	Taxan	01344 484646

This 17-inch monitor offers good picture quality and is easy to set up. We reviewed the Taxan Ergo Vision 730LR.

Printers



Are you shopping for a mono printer or colour? Portable or desktop? PostScript or non-PostScript? Inkjet or laser? We've reviewed dozens of printers for every need, and here is our pick of the best. Don't forget to shop around for the best prices, since these change continually (usually downwards). For more on what to look for, see MACFORMAT 38.

Name	Price	Rating	Reviewed	Contact	Telephone
ALPS MD-2010	£529	90%	MF45	Rotec Distribution	01604 402012

MACFORMAT Classic Slow and clackety though it might seem, the MD-2010 produces quite superb colour and definition – but only on high quality paper.

Apple StyleWriter 1500	£275	90%	MF38	Apple	0800 127753

MACFORMAT Classic For the price, excellent colour performance even on plain paper. Its budget background begins to show on coated and glossy papers, though.

Apple StyleWriter 2500	£359	84%	MF38	Apple	0800 127753

A big improvement on its predecessor, the 2400, but not quite in the same league as colour rivals from HP and Epson.

Citizen PN60	£340	82%	MF27	Citizen	01753 584111

Minute portable printer that can output in colour. The size makes the controls fiddly, though, and performance is suspect.

Buying Advice continued

when you sign for the goods. If there's anything you're not happy with, don't use the product – if you do, you could be deemed to have accepted it.

- Whether you bought it by mail or in a shop, the law says a product must be of satisfactory quality (in other words, broadly speaking, it must work), be as described, and be fit for the purpose for which it was sold. These stipulations are laid down in the Sale of Goods Act, and they are the "statutory rights" that sellers cannot alter or deny. If your product fails to meet any or all of these criteria, return it to the supplier and insist on a refund.
- If you buy a product that is either completely broken or doesn't work fully, you have two choices. If the supplier offers a convincing argument that it can be repaired promptly and adequately, you may be prepared to wait while they take it back and sort it out. Otherwise you can reject it outright and either claim a replacement or a refund. If you want a refund you need to act promptly – as soon as you could reasonably be expected to notice the defects – otherwise you might be deemed to have "accepted" the goods as they are, defects and all.

How to complain

If you're not happy about something, always contact the supplier first and politely explain your problem. Most companies will do their best to help, if only because they need your custom. Be patient; if there's some technical problem, it may genuinely take the dealer some time to find the solution. Most difficulties are sorted out at this stage without further fuss.

If yours isn't, put your complaint in writing, clearly stating your problem and what you'd like done. Give the firm a reasonable time to reply – say 14 days or so.

If your complaint is not resolved or you feel that the dealer is not being reasonable, you may need to take some sort of legal action to enforce your rights. This need not cost you a lot of money. Seek advice from a solicitor (ask about the free advice scheme – you may not have to pay for the initial consultation). Or contact one of the following (check your local phone directory for contact details):

- Citizen's Advice Bureau – for general advice on your rights as a consumer, information about your options, help drafting effective letters and so on.
- Trading Standards Office (listed under your local council) – for help when you feel that an advertisement was misleading or that a dealer is acting improperly.
- Office of Fair Trading – for help when you believe that a dealer is not treating you fairly.
- County Court – ask about the "small claims" procedure if you are convinced that you have explored every avenue with the dealer and are sure you want your money back.

➤ page 132

Product News

Double-speed downloads?

Experts have been telling you that your analogue phone lines can support a maximum data transfer speed of around 35Kbps for so long that you've come to believe them. Fortunately, US Robotics hasn't been listening and has developed a 56Kbps system that will work on existing analogue phone lines.

How is this done? The V34 modems used by service providers and end-users are based solidly around analogue telephone communications. The connections between the service providers' modems and the Public Switched Telephone Network that forms the backbone of the Internet are now entirely digital – yet the service providers' modems are still reconstructing analogue waveforms from this data, which they then send on to your modem.

There are problems with this, and US Robotics' idea is simple. Get the service providers' modems to send you the original digital data, and get your modem to reassemble it in a usable form. The connections then remain entirely digital, meaning fewer errors and much higher transfer speeds.

To do this, service providers must upgrade their modems to handle the new US Robotics x2 technology. UK service providers which have already committed themselves to the scheme include CompuServe, AOL, Pipex and Netcom – and more big names can be expected if the project takes off.

If you're a home user, you won't be able to take advantage of x2 technology, though, unless you already own a Courier modem (equipped with flash memory so you can update the built-in modem software). However, US Robotics has now announced a new addition to its cheaper Sportster range – the Sportster Flash – which includes flash memory, as well as the fax, voicemail and other features of the current Sportster Voice 33.6.

The x2 software is available this month, but you'll be able to download it free of charge from the US Robotics bulletin board. To find out more about x2 technology or the Sportster Flash, call US Robotics on 01734 228200, or visit the company's Web site at **http://www.usr.com/**

Kodak camera recall

If you own a **Kodak DCS 420** or **DCS 460** professional digital camera, you should contact **Kodak.** There's a problem with the nickel metal hydride battery packs in models produced between **February 1994** and **July 1995** which could lead to overheating and possibly even a rupture of the

➤ page 134

Name	Price	Rating	Reviewed	Contact	Telephone
Epson EPL-5500	£469	89%	MF39	Epson	01442 61144

Compact and light 600dpi PostScript printer with a useful 5Mb of RAM. Documentation is turgid, though, and you'll need to buy a lead for your Mac.

Epson EPL9000	£2,055	84%	MF29	Epson	01442 61144

A3 600dpi PostScript printer that provides good quality output from a surprisingly compact box.

Epson Stylus Pro	£513	90%	MF38	Epson	01442 61144

MACFORMAT Classic Built like a breeze block, but offers stunning smoothness and resolution, even though greens turned a bit muddy. Almost as good as a dye-sub printer.

FotoFUN! Printer	£493	87%	MF31	Bannerbridge	01268 419101

Affordable, good quality dye-sub colour output. Takes up little space but only prints out 6-inch x 4-inch snapshots.

HP LaserJet 5MP	£1,198	95%	MF29	Hewlett Packard	0990 474747

MACFORMAT Classic 600dpi PostScript laser printer with excellent greyscale and resolution enhancement for remarkable output quality at the price.

HP DeskJet 340	£235	85%	MF27	Hewlett Packard	0990 474747

Portable 300dpi inkjet with colour capability and excellent output quality. Clear leader amongst the portables at this price. We reviewed the HP DeskWriter 320.

HP 870cxi	£494	92%	MF38	Hewlett Packard	0990 474747

MACFORMAT Classic First-rate colour balance, excellent contrast and very good performance on plain paper is combined with good value. It's a winner! We reviewed the HP 850C.

NEC SuperScript 3000	£1,115	88%	MF35	NEC	0345 404020

Three different printing technologies at a bargain price, but second-division quality and long print times.

Tektronix Phaser 140	£1,351	88%	MF38	Aztec Associates	01274 590 555

Affordable PostScript colour printer. Colour and definition nearly on a par with non-PostScript models.

Office

Most Macs are used at one time or another in the office or study, using worthwhile applications like word processors, databases and spreadsheets. There are many related productivity applications, too, like personal organisers and presentation packages. Here's our pick of the best.

Name	Price	Rating	Reviewed	Contact	Telephone
Act 2.5	£199	86%	MF36	Symantec	01734 814 230

Feature-heavy contacts manager that works well in sales offices, but lacks flexibility as a personal organiser.

ClarisImpact 2	£152	86%	MF34	Claris	0181 756 0101

Combines spreadsheet functions with charting, outlining and DTP for the ultimate low-end business presentation suite.

ClarisWorks 4.0	£152	92%	MF31	Claris	0181 756 0101

MACFORMAT Classic The Mac's standard all-in-one office suite. Inexpensive yet very powerful in the right hands, and highly flexible too. Get it and use it.

Excel 5	£220	87%	MF18	Microsoft	0345 002000

The only professional spreadsheet package on the Mac boasts 3D documents, pivot tables, databases and more.

Expresso 1.0	£20	89%	MF31	Softline	0181 401 1234

Personal organiser that makes up for in charm and value what it lacks in high-powered relational data-handling.

FileMaker Pro 3.0	£234	96%	MF37	Claris	0181 756 0101

MACFORMAT Classic An excellent database that's been tweaked and tuned, and is now fully relational. Be very sure you need more power before shopping elsewhere.

Let's KISS	£153	91%	MF41	Softline	0181 401 1234

MACFORMAT Classic As a piece of software design, so far ahead of traditional spreadsheets and feeling so right that you wonder why no-one thought of it sooner.

Microsoft Office	£469	73%	MF46	Microsoft	0345 002000

A colossal powerhouse in all senses, but this doyen of the business world is expensive and has some surprising gaps. Includes *Word 6* and *Excel 5.*

Organiser 2	£81	86%	MF46	Claris	0345 413060

Can handle links between information both internally and to the Net, and is flexible and robust – no networking, though.

Up-to-Date & Contact 3.5	£116	89%	MF31	Now! Software	01525 237001

Dynamically-linked duo of contacts manager and diary. Occasionally a little too complex for its own good.

Word 6.0.1	£220	92%	MF20	Microsoft	0345 002000

MACFORMAT Classic The world's favourite word processor has a monumental feature list but a bewildering array of controls, toolbars and gadgets that make it feel simply top-heavy. We reviewed *Microsoft Word 6.0.*

Who understands the Mac & PC memory market better than anyone?

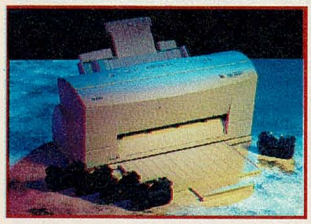
Who offers a lifetime guarantee on memory products – and means it?

?!?!?!

Product News continued

battery pack. Faulty packs will be replaced via a no-cost return procedure, the firm says. Call **Kodak** on **01442 845229** for more information.

All-in-one scanning and printing



We were impressed with the **ALPS micro-dry MD-2010 colour printer** when we reviewed it in **MACFORMAT 45,** so the new **MD-4000** is especially interesting, as it combines the same colour printing engine with a 600 dots-per-inch single-pass colour scanner.

The **MD-4000** offers the convenience of a scanner and printer in one box that's supplied by only one cable from your Mac. MACFORMAT hasn't reviewed the scanner yet, but we recommend the printer. It uses dry tape cartridges rather than messy inkjet reservoirs, and the output is completely **dry** and **smudge-free** – good-quality paper is suggested too.

The recommended retail price is **£703.83,** and you can find out more by calling **Rotec Distribution** on **01932 571800.**

Macmillan Interactive Publishing

CD-ROMs for children from **Macmillan Interactive Publishing** combine fun with education for kids from the ages of four to 11. ***Children's Songs of the World*** presents traditional songs from countries around the globe. The music scores enable children to learn about creating music, while a brief cultural background from each country provides historic and geographic facts. Learning another language is the stuff of ***Q Steps French for Children;*** and last is a re-release of ***Fuzzy and Floppy: The Adventure of the Golden Bee,*** an engaging adventure which takes you through problem-solving situations in an animated world. All are now available at **£24.99** from software stores, bookshops and **MIP** direct. Call **Macmillan** on **0171 881 8304** for info or visit the **MIP Website** at **http://mip.macmillan.co.uk/**

ViewSonic

ViewSonic has just launched a **29-inch multimedia presentations**

➤ page 136

Graphics

From image-manipulation to professional illustration to 3D design and raytracing, here's our pick of the top Macintosh graphics packages.

Name	Price	Rating	Reviewed	Contact	Telephone
Bryce 2	£234	93%	MF38	Principal	01706 832000

MACFORMAT Classic 3D landscape creation tool that's more versatile than its predecessor and can create indoor scenes too. Easy (by the standards of 3D software) and capable of breathtaking results.

CorelDraw 6	£465	91%	MF44	Channel MM	01703 814142

MACFORMAT Classic You need a PowerMac, you need plenty of RAM, you need hundreds of megabytes of disk space: but, if you have all of these, *CorelDraw* is great.

Dabbler 2	£59	90%	MF35	CU	0181 358 5857

MACFORMAT Classic Natural media painting program for those awed by multi-layered dialogues and complex options. Backed up with lots of CD-ROM resources.

Detailer	£328	85%	MF46	Principal	01756 704040

Detailer is powerful, fast and satisfies a genuine need for a form of direct 3D image mapping every artist can understand.

FreeHand 7.0	£529	82%	MF47	CU	0181 358 5857

A significant improvement on the previous version, FreeHand 7.0 is well worth upgrading to.

Illustrator 6	£376	80%	MF37	Adobe	0181 606 4000

The latest version of this vector-based professional illustration package is nearly on a par with its great rival *FreeHand.*

Infini-D 3.5	£469	85%	MF42	Gomark	0171 731 7930

3D modelling, rendering and animation package that's easy to use but produces rather crude and mechanical results.

Kai's Power Goo	£58	90%	MF41	Principal	01706 832000

MACFORMAT Classic Provides many of the image manipulation tools of professional graphics applications, but is cheaper than many *Photoshop* plug-ins! Possibly the best fun you'll have with a graphics package.

Live Picture 2.5	£934	85%	MF38	IMC	01344 871 329

A kind of super-*Photoshop* with an unusual interface but excellent compositing. Not as RAM-hungry as *Photoshop.*

Painter 4	£469	91%	MF35	CU	0181 358 5857

MACFORMAT Classic Blends traditional painting tools and media with mouse pointers and Bézier curves. Too arty for some, too amateur for others, but we rate it.

PhotoDeluxe	£88	85%	MF39	Adobe	0181 606 4000

Innovative and powerful photo manipulation package at a bargain price – if you've got the hardware needed to run it.

Photoshop 4.0	£635	92%	MF47	Adobe	0181 606 4000

MACFORMAT Classic The world's most popular image editing package gets even better with a careful rethink of existing capabilities. You might have trouble with the new interface, though – particularly the keyboard shortcuts.

Ray Dream Studio 4.0	£222	89%	MF39	Principal	01706 832000

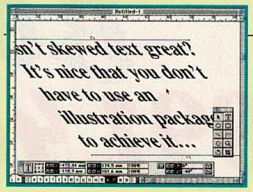
Easy to use with brilliant modelling and Scene Wizards, but very slow. Clear documentation and a bargain price.

StrataStudio Pro 1.75	£1,169	92%	MF34	Principal	01706 832000

MACFORMAT Classic Creates complex geometries, resulting in detailed and realistic stills and animations. It's at the forefront of 3D software technology.

xRes 3	£645	91%	MF38	CU	0181 358 5857

MACFORMAT Classic Heavyweight graphics package aimed at a market beyond *Photoshop,* but using less RAM. We reviewed *xRes 2.* The cut-down *xRes SE* was yours with our double-CD MACFORMAT 47.



Desktop publishing

Professional print publishing is still dominated by *QuarkXPress* and *PageMaker,* but this category also includes Web page design, electronic publishing in general, and various publishing utilities.

Name	Price	Rating	Reviewed	Contact	Telephone
BBEdit 4	£112	85%	MF47	Full Moon Software	01628 660242

This Web authoring tool is definitely not for beginners, but it's very powerful in an expert's hands.

Home Page 1.0	£81	91%	MF47	Claris	0181 756 0101

MACFORMAT Classic Claris's Web page maker is good for beginners yet still offers you room to grow. We found it the easiest to pick up of all the Web editors.

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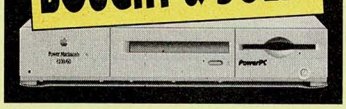

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Product News continued

monitor. The **29GA** performs as a television screen or computer screen, and has a resolution of 1,024 x 768 at a high refresh rate of 80Hz. The **29GA** is ideal for conferences or training, as it enables you to add external speakers and multiple monitors – and **ViewSonic** also offers the **PT755 monitor,** with a stunning maximum resolution of 1,600 x 1,200 at 77 Hz. Additionally, a **17-inch Super Contrast screen** and dot-pitch of 0.25mm makes the **PT755** the model for you if you're graphically-minded.

Lastly, the **VP140 monitor** is a **diagonal 14-inch LC** with supermodel statistics – its **slim design** (15cm in depth) is a valuable space-saver and it further has a **low energy consumption**. Street prices for the **PT755** and **VP140** are **£758** and **£1,880,** and the **29GA** retails at **£2,932.** Contact **ViewSonic** on **0181 781 1856** for availability.

Bargain 17-inch

Buying larger monitors is an expensive business. **15-inch models** aren't too tough on the wallet, but **17-inch models** – the minimum practical size for **desktop publishing and graphics work –** make an altogether bigger dent in your personal finances, especially if you buy one with a **Trinitron tube** to get the best possible picture quality.

Sony, the inventor of the **Trinitron**, may have the answer in the form of the **Multiscan 200sx.** It offers resolutions from **640 x 480 to 1,280 x 1,024** with a refresh rate of **65Hz** at the highest resolution. The Trinitron tube's special **aperture grille** enables more light to hit the front of the tube (meaning it can be made of darker glass), which in turn means you get greater contrast. Sony claims its **glare-reducing screen coating** and a multi-lens focusing system maintains sharp focus right into the screen corners.

And it all costs just **£558.** Find out more by calling **Sony** on **0181 760 0500,** or visiting the Web site at **http://www.sony-cp.com/**

Dead mouse?

Have you **broken your mouse?** Did it disappear somewhere between your old flat and the removal van? Are you just sick of **the way it clicks?** If so, **Lindy Electronics** will cheerfully sell you a new one for only **£23.49.** At the same time, you might also be tempted by the **106-key Lindy ADB Extended**

➤ page 138

Name	Price	Rating	Reviewed	Contact	Telephone
PageMaker 6	£605	91%	MF32	Adobe	0181 606 4000

It can do everything that *QuarkXPress* can do at about half the price. Text-handling is a bit creaky, but layout and design is clean and simple.

PageMill 2.0	£116	90%	MF47	Adobe	0181 606 4000

A powerful, easy-to-use program with excellent support for advanced features like frames and multimedia elements. *PageMill* innovated the the idea of DTP-style Web page authoring and still hasn't lost its edge.

System enhancers

Whatever Apple does to the System and Finder, there will always be programmers who think they've got a better idea – either a quicker, more efficient way of doing something, or an enhancement to the Mac's interface that makes it better-looking, more user-friendly or simply a lot more fun.

Name	Price	Rating	Reviewed	Contact	Telephone
The Little Mac Toolkit	£35	89%	MF28	Addison Wesley	01279 623 623

A disc packed with useful (and not-so-useful) shareware and freeware combined with a very good manual.

OneClick	$89	91%	MF35	WestCode Software	00 1 619 487 9200

Create floating palettes for launching applications and opening files, and set up short-cut macros for your favourite applications. Real power.

RAM Charger 3.0	$29.95	93%	MF47	Syncronys	00 1 213 340 4100

Frees up megabytes of precious RAM, runs on any Mac, and is compatible with virtual memory and *RAM Doubler.* Marvellous!

RAM Doubler 2	£71	92%	MF43	CU	0181 200 8282

As long as you have a modern Mac, *RAM Doubler* is such an essential utility you'll wonder how you coped without it.

Multimedia authoring

As business presentation packages start to offer the features of multimedia authoring kits, and as authoring kits are used more and more by businesses looking for presentations with more polish, the boundaries are becoming blurred – hence the umbrella title "multimedia authoring" used here. This includes animation and video too.

Name	Price	Rating	Reviewed	Contact	Telephone
Astound	£222	91%	MF36	Gold Disk	01734 814230

A top presentation tool which makes handling quite complex actions easy. Surprisingly competent at general multimedia authoring.

Authorware Academic	£150	95%	MF43	Prentice Hall	01442 257115

Icon-based multimedia creation at its finest, this power-packed program is ideally suited to lecturers as well as students. Just as well, as they're the only people who can buy it.

Director 5.0	£1,174	85%	MF41	CU	0181 358 5857

A sound upgrade to the industry leader for media authoring, which irons out many shortcomings. It's easier to use, too.

Director Academic	£46	95%	MF43	Prentice Hall	01442 257115

De-facto standard for multimedia creation in a cut-down version – for educaion only. Powerful and versatile but complex, especially with its Lingo scripting language.

HyperStudio 3.0	£121	88%	MF36	TAG Developments	01474 357350

Practical and powerful tool aimed more at education than multimedia authors per se. More text styling tools are needed.

Multimedia CD-ROMs

The invention of the CD-ROM has created a whole multimedia publishing industry turning out educational, reference and leisure titles by the score. Here's our list of CD-ROMs that every home should have on its bookshelf. Possibly.

Name	Price	Rating	Reviewed	Contact	Telephone
ABC of Animals	£39.99	90%	MF47	Creative Wonders	01753 549442

Covering a wide range of animals across the globe, this CD is educational and a well-designed treat. Carefully put together, it has a breadth and authority which guarantee you won't be bored.

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Iiyama high-detail monitor

This month Japanese company **Iiyama** launches a **high-resolution colour monitor** in the UK. The **17-inch monitor** named the **Vision Master PRO 17** saves power but also puts out an impressive **1,600 x 1,200** resolution that's **flicker-free.** At about **£629,** the monitor will be available from mid-March. **Iiyama UK** can be contacted at **01438 314417.**

From monitor to TV...

One of the problems with making **on-screen presentations** is getting hold of a Mac monitor large enough that everyone can see (and being able to afford one, of course). **Imagine Graphics** may have the answer, though, with its new **Grand Teleview computer-to-video scan converter.**

This device **converts the output** from your Mac into a **video signal** that can be displayed on any television. It connects between your Mac and its monitor, and from there to the TV. So now, you can sit at a table running the show from your Mac while the audience watches a big screen. The **Grand Teleview** includes an **audio amplifier** and **label microphone** so you can add a verbal commentary. You can also freeze frames and zoom-in on details.

The **Grand Teleview** costs **£346.63** from **Imagine Graphics** on **01727 844744.**

Portable modem from Motorola

Motorola has released the **PCMCIA V.34 MAC Data Fax modem.** At

➤ page 140

Name	Price	Rating	Reviewed	Contact	Telephone
Cinemania 97	£29.99	92%	MF47	Microsoft	0345 002000

MACFORMAT Classic If you have a CD-ROM drive, £30 and even the slightest if interests in cinema, then this is an essential buy. Specify a category and it will even find a video for you to rent.

Encarta 96	£50	83%	MF42	Microsoft	01345 002000

Microsoft's definitive multimedia encyclopedia is bang up-to-date, but the Mac implementation is flawed.

History of the World	£40	89%	MF38	Dorling Kindersley	0171 753 3488

More flashy and inspirational than in-depth and authoritative. Oozes quality, but built for browsing rather than research.

Makers of the 20th Century	£45	89%	MF41	News Multimedia	01525 852 813

200 personalities of the 20th Century are examined and explained in a well-presented and often intriguing CD.

MTV Unplugged	£25	88%	MF40	CIC	0181 846 9433

Multimedia database of *Unplugged* performances going back seven years and including interviews, video and set listings.

Music Central 97	£29.99	85%	MF47	Microsoft	0345 002000

A well-researched and thorough delve into the world of popular music, even if some of the entries do seem quite obscure.

The Mystery of Magritte	£39.99	90%	MF46	MIP	0171 881 8000

MACFORMAT Classic An engaging and radical look at one of the world's greatest all-rounders. It'll make you question your very existence.

Picasso	£39.99	88%	MF46	Grolier Interactive	01865 264000

An educational and entertaining trawl through the life and works of one of the world's greatest artists.

RedShift 2	£50	92%	MF32	Maris Multimedia	0171 488 1566

MACFORMAT Classic Restrained but magnificent exploration of the universe using sound astronomic principles, hailing originally from Russia rather than the gung-ho States. Utterly definitive.

World Reference Atlas	£50	90%	MF37	Dorling Kindersley	0171 753 3488

MACFORMAT Classic Bestrides the Earth like a colossus, giving you the information you need, when you need it. The maps and graphics are mouth-watering.

Multimedia for Kids

How do you keep the kids entertained on a wet Sunday afternoon in November? How do you justify the purchase of a new PowerMac to your spouse/bank manager/conscience? Multimedia CD-ROMs for kids can entertain, occupy and educate all at the same time. Here are the best we've seen.

Name	Price	Rating	Reviewed	Contact	Telephone
Adiboo	£27.99	95%	MF46	Sierra	0118 920 9111

MACFORMAT Classic A fantastic learning adventure, packed full of activities and fun across two CD-ROMs. This will keep your kids fascinated for hours.

Counterfeit Collaborator	£28	90%	MF35	Sierra	01734 303322

MACFORMAT Classic A genuinely intriguing mystery forms the heart of this Playtoon CD. French imagination and illustration translated into English makes a beguiling combination.

Darby the Dragon	£20	89%	MF44	Brøderbund	01429 273029

A rare and challenging adventure game, which will educate and captivate your kids.

Greatest Toyshop on Earth	£30	88%	MF32	Omnimedia	0181 974 6766

A brilliantly entertaining set of kids' toys in a comfortingly British environment. Something to keep coming back to.

Logical Journey of the Zoombinis	£30	96%	MF41	Brøderbund	01429 273029

MACFORMAT Classic A well-designed course in mathematical logic for kids that's almost completely disguised as a superb-looking and fun game.

The Lost Mind of Dr Brain	£28	92%	MF43	Sierra	01734 303322

MACFORMAT Classic Challenging, lots of fun and well suited to the intended age group, *Dr Brain* is addictive and has longevity. A great buy.

The Mandarine Prince	£28	88%	MF37	Sierra	01734 303322

A firm favourite in his native France, cub reporter Spirou solves another mystery in this fine title.

Maths Workshop	£30	90%	MF41	Brøderbund	01429 273029

MACFORMAT Classic Teaches maths in the broadest possible sense, with wonderful-looking activities and a good manual. Needs adult assistance, though.

My First Amazing World Explorer	£30	89%	MF41	Dorling Kindersley	0171 753 3488

Interactive atlas that's pitched at just the right level for younger children, showing the world as a diverse and living thing.

PB Bear's Birthday Party	£30	92%	MF35	Dorling Kindersley	0171 753 3488

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MAC Empfehlung 7/96

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Product News continued

£159, this scarily fast modem operates at **33.6Kbps** – and the purchase price includes **one month's free CompuServe membership.** Call Motorola's Information Services Group on **01635 564467** for details.

Mac Diary

Networking with Soda

Where: Spacex Gallery, Exeter
When: Saturday 15 February to Saturday 22 March
What: Exhibition of fine art created on Macs – contemporary art exploring the new possibilities of communication.
Price: Free
Contact: Spacex on 01932 431786
Web: http://www.soda.co.uk/

Total Publishing

Where: Business Design Centre, London
When: Tuesday 24 June and Wednesday 25 June
What: Exhibition and conferences for anyone working in the publishing industry, showcasing new technology, trends and services.
Price: Register free before Friday 16 May, or £20 on the day
Contact: Ticket enquiries on 0181 390 0203
Web: http://www.totalpublishing.co.uk/

User Groups

User groups are more or less informal clubs of people with a common interest – in this case, Macs. If you don't have any Mac-owning friends, they're a great source of information, advice and hands-on help. Some groups simply meet every now and again; others are more structured and may even publish regular newsletters.

This listing is a free service for amateur, non-profit-making Mac user groups. MACFORMAT does not endorse or recommend any group and cannot be held responsible for any problems you might suffer as a result of contacting any of the groups listed here.

UK User Group Council list

The UK User Group Council maintains a list of the Mac user groups which have registered with it. If you wish to contact the council, call John McKnight on 0181 314 5555.

Local groups

- **Aston University Mac UG**: Birmingham area. Contact Ray Tier on 0121 359 3611
- **Berkshire Mac UG**: contact Ian Burn on 01734 813669
- **Blackburn Mac UG**: contact Roger Moreton on 01254 670043
- **Bristol (BAUD)**: contact Malcolm Ingsley on 01454 616846

➤ page 142

Name	Price	Rating	Reviewed	Contact	Telephone
The Secret of the Castle	£28	90%	MF35	Sierra	01734 303322

MACFORMAT Classic This Playtoon disc is produced to the same high standards as its sister titles, but in this case its value is more entertaining than educational.

Uncle Archibald	£28	90%	MF35	Sierra	01734 303322

MACFORMAT Classic Another excellent Playtoon about imaginary monsters that come to life. Slapstick chaos is the result. And you can use it to learn French.

The Way Things Work 2.0	£40	88%	MF45	Dorling Kindersley	0171 753 3488

Full of clear explanations and plenty of fun. Kids will find this easy to use, and can learn at their own pace.

Games

As a games machine, the Macintosh now rivals both the PC and the plethora of whizz-bang plastic games consoles flooding the teen market. The best games tend to be those that involve brains as well as reflexes, and those which absorb you thoroughly into their game-world. Here's our choice of the best recent titles.

Name	Price	Rating	Reviewed	Contact	Telephone
A-10 Cuba!	£45	90%	MF46	Softline	0181 401 1234

MACFORMAT Classic *A-10 Cuba!* has benefitted from a general tidy up, and some interesting missions. It needs a fast Mac for best results, though.

Actua Soccer	£39.99	90%	MF46	Gremlin	0114 275 3423

MACFORMAT Classic A beautiful game about the beautiful game, and a superb debut performance for football on the Mac. Roll on the competition.

Apache Longbow	£45	92%	MF41	Digital Integration	01276 684959

MACFORMAT Classic 3D Gouraud-shaded flight sim with real class and some fairly hefty hardware requirements. Once you've mastered the controls, the missions are a joy.

Asterix: Caesar's Challenge	£40	92%	MF36	Infogrames	0171 738 8199

MACFORMAT Classic Great family fun with superb animations and humour, and oozing with novelty. Just don't ask awkward questions about long-term appeal.

Day of the Tentacle	£40	94%	MF33	Virgin Int. Ent.	0171 368 2266

MACFORMAT Classic A game it's impossible to fault. You'll love it. You'll hate it. You'll want to wring its neck. It's funny, it's involving and the cartoons are quite superb.

Doom 2: Hell on Earth	£45	90%	MF31	Virgin Int. Ent.	0171 368 2266

MACFORMAT Classic The blood-spattered violence *Doom* is famous for hides some quite involving puzzle-solving. One of the best 3D arcade games around.

F/A-18 Hornet 2	£69	93%	MF36	Softline	0181 401 1234

MACFORMAT Classic Realistic, absorbing and fun – an instant classic. Imaginative and interesting missions that progress into desperate adrenaline-laced strikes.

IndyCar Racing II	£17	94%	MF42	Sierra	01734 303322

MACFORMAT Classic Spectacular simulation at its finest, and at a real bargain price. Stunning graphics and attention to detail, combined with responsive cars and ruthless opponents.

Marathon 2	£65	95%	MF35	Softline	0181 401 1234

MACFORMAT Classic A huge game task, addictive gameplay and excellent graphics and sound. What more could you ask for? Well... maybe a lower price.

Nascar Racing	£34.99	89%	MF47	Sierra	0118 920 9100

A speedy, game that tests skill and patience to the full – great detail and scenery too, but demanding on hardware.

Pro Pinball: The Web	£35	90%	MF44	Empire	0181 343 7337

MACFORMAT Classic The finest pinball simulator ever (full stop).

WarCraft II	£45	93%	MF45	Zablac Entertainment	01626 332233

MACFORMAT Classic A delight to look at, with excellent effects. In multiplayer mode, as near to perfect as a game of this type has come.

Worms	£30	89%	MF45	Team 17	01924 271637

Simple concept with almost endless tactical possibilities. Great multi-player game but let down by a clumsy interface.

How to contact MACFORMAT

Editorial enquiries
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30 Monmouth Street, Bath BA1 2BW.
Tel: 01225 442244, fax: 01225 446019
E-mail: macformat@futurenet.co.uk
Web site: MACFORMAT is on-line as part of FutureNet. Accessing it is free – point your World Wide Web browser at:
http://www.futurenet.co.uk/

Sending us a letter?
Send your letters to the address above – the shorter they are, the better their chances of being printed. E-mail letters are welcome too – please put "Apple Talk" in the subject line. If you'd like a letter included in the Readers' Corner on our Cover CD-ROM, make sure it contains no defamation or obscenity, then send it in as a *SimpleText* document (so anyone can read it!) on a disk marked "MACFORMAT Readers' Corner". Make sure you include your name and address, and note that we can't return your disk.

■ If you send us a fax, please write "MACFORMAT" prominently at the top so that our receptionists know which of Future Publishing's 50 magazines to forward it to.

■ The legal stuff: all correspondence sent to our editorial address will be considered for publication unless you specifically state otherwise, and we reserve the right to edit letters for reasons of space, clarity or legality. By writing to us, you agree to assign all copyright in your letter to Future Publishing Ltd and its licensed agents worldwide, so we can translate it for our Taiwanese edition next year... if it's good enough. And don't even *think* of asking for it back afterwards.

Problems or questions?

■ Sorry, but we cannot give personal help with technical problems or buying advice, whether by phone, fax or e-mail. If you have an urgent problem with a new Mac, try the Apple Assistance Centre on 01753 615999.

■ We try to make ourselves available to answer Cover Disc related and general reader calls on Wednesday afternoons from 2pm to 6pm, so please ring then if you have to. We cannot answer technical queries over the phone – sorry! We hope you'll understand that because we receive so much correspondence we can't promise to reply to faxes, e-mail or mail personally, even if you include an SAE. However, rest assured that we do read all correspondence we receive.

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Over to you

Make MACFORMAT the Mac magazine you want to read!

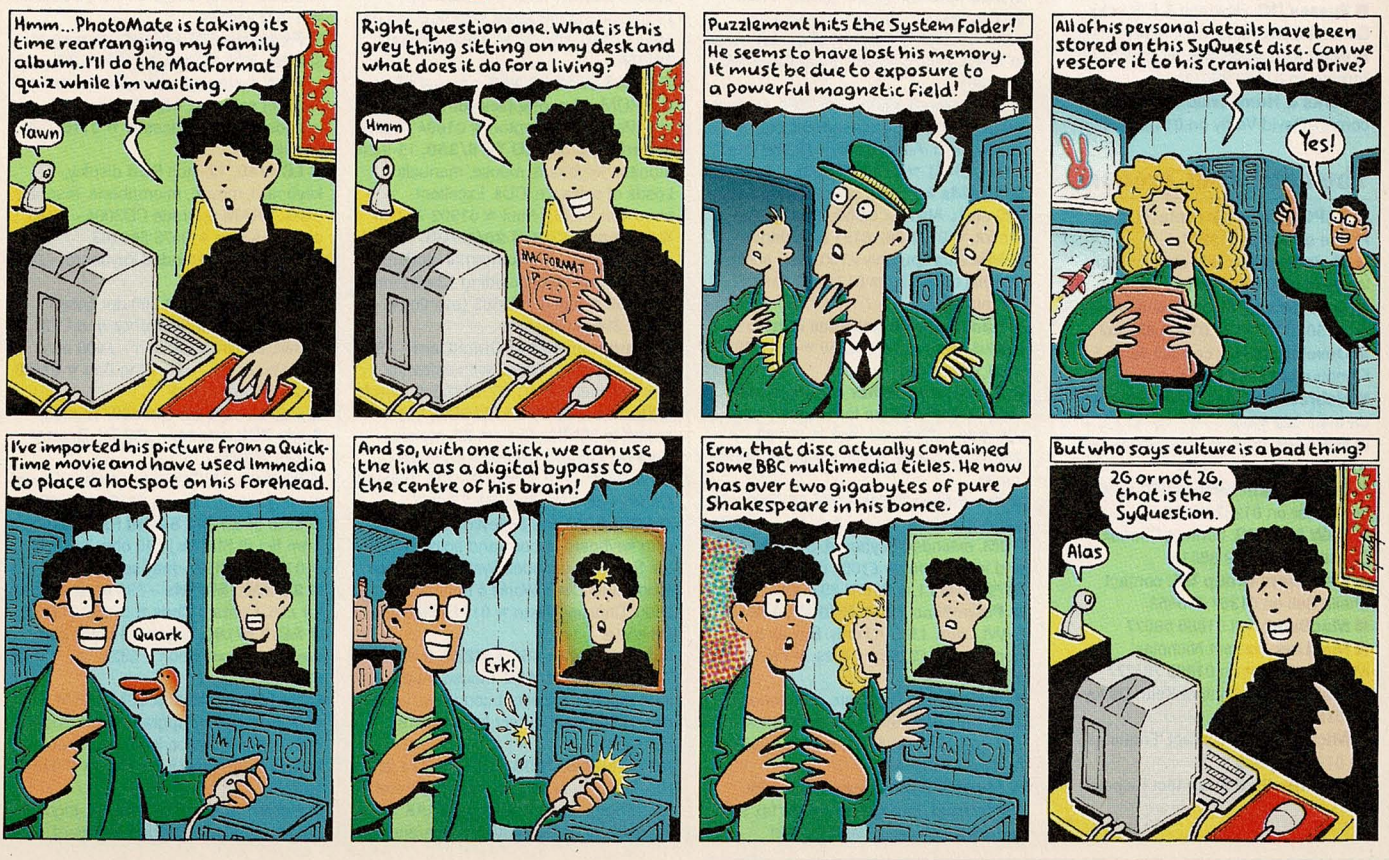
What would you like to see in MACFORMAT? As Britain's best-selling Mac magazine, we strive to cover the range of Mac uses, from the Macintosh's traditional areas of strength like graphics and design, through databases and spreadsheets, all the way to music, multimedia and games. But are we getting the balance right?

With an enticing range of Performa bundles and still more PowerMac price cuts (see News, page 25), the appeal of the Mac is broader than ever. So is there an area you'd like us to cover more fully? Should we include more game-busting tips on hitting those high scores in your favourite games, or more *Photoshop* and *Director* tutorials?

Perhaps you yourself use your Mac in some interesting or unusual way that you think would interest other readers. Let us know by any of the routes in the box at left. MACFORMAT is *your* magazine; this is your chance to help make it the magazine you *want* to read! **MF**

The Classic System Crew

by Bob Lynch


Hmm...PhotoMate is taking its time rearranging my family album. I'll do the Macformat quiz while I'm waiting.
Yawn
Right, question one. What is this grey thing sitting on my desk and what does it do for a living?
Hmm
MACFORMAT
Puzzlement hits the System Folder!
He seems to have lost his memory. It must be due to exposure to a powerful magnetic field!
All of his personal details have been stored on this SyQuest disc. Can we restore it to his cranial Hard Drive?
Yes!
I've imported his picture from a QuickTime movie and have used Immedia to place a hotspot on his Forehead.
Quark
And so, with one click, we can use the link as a digital bypass to the centre of his brain!
Erk!
Erm, that disc actually contained some BBC multimedia titles. He now has over two gigabytes of pure Shakespeare in his bonce.
But who says culture is a bad thing?
2G or not 2G, that is the SyQuestion.
Alas

User Groups continued

- **Cambridge Apple UG**: contact Ian Archibald on 01223 311157
- **Cancer Research/RMH UG**: contact Raymond Henry on 0181 643 8901
- **Cumbria Mac user group.** Monthly meetings, newsletter, training (reasonable rates). Call Linda Linsell, 01229 828422 or send SAE c/o 10 Athol Street, Barrow-in-Furness, Cumbria LA14 2QT.
- **Gateway UG**: Norfolk area. Contact Verne Anderson on 01638 513000
- **Glasgow Mac UG**: contact Stephen Broadfoot on 0141 339 6646
- **London Mac UG**: contact John McKnight on 0181 314 5555
- **Mac Assist**: Cardiff and district. Contact Nigel Arrighi on 01222 224682
- **Midapple**: West Midlands. Contact William Watson on 01384 277921
- **Midland Mac UG**: Worcestershire. Contact Ivan Knezovich on 01299 402631
- **North West Apple CC**: contact George Evans on 01270 583714
- **Norwich Mac UG.** Dave Gudgeon on 01508 492938
- **Nottingham Mac UG**: contact David Nicholson-Cole on 0115 945 5077 or 0115 945 5444
- **Poole Mac UG**: contact Bob Lister on 01202 684441
- **S E Essex Mac UG**: contact Michael Foy on 01702 468062
- **Southampton Mac UG**: contact Clive Marklow on 01703 293453
- **Southern Mac UG**: Salisbury area. contact Roger Ford on 01722 780102
- **Southwest Mac UG**: contact John Elver on 01272 693119
- **Staffordshire Poly Mac UG**: contact Mark Stiles on 01785 52331
- **Sussex UG**: Hastings & E Sussex. Contact Garry Nevin on 01424 714110
- **West Midlands UG**: contact Danny Torbica on 01902 336172
- **Yorks & Humberside Mac UG**: contact David Vardy on 01423 358853

Thematic user groups

- **BAPC (Printers)**: contact Derek House on 01228 513621
- **Christian Mac UG**: contact Paul Wareing on 01789 490153
- **Corel Draw UG**: contact Jill Foster on 01509 415101 or 01509 620442
- **Developers UG**: contact John French on 01895 672654
- **HebreWare**: contact Mendy Scharf on 0181 802 6143
- **Helix UG**: contact John Sandell on 01763 273379
- **Independent School UG**: contact Ian Carter on 01252 512151
- **LAW Mac UG**: contact Charles Christian on 01379 88518
- **Lisa Users Group UK**: contact Sheila Bell on 01367 710453
- **MacBaud**: call 01685 58027
- **MacLaw**: contact Nicholas McFarlane-Watt on 01865 784777
- **Medical UG**: contact Keith Davey on 01836 348284
- **Microsoft UG**: contact 'Enquiries' on 01252 834995
- **Multimedia UG**: contact Richard

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- **Macintosh 72-pin SIMM,** 4Mb, £20 including registered delivery ☎ 01604 404767.
- **32Mb SIMM,** hardly used – £140 inc p&p (save over £100) Ian ☎ 01354 655284 (anytime).
- **Cassette base** with A4 drawer for personal LaserWriter LS – £30, PowerBook fax modem – £20, PowerBook power pack – £20, Mac books and manuals available ☎ 01480 300409.
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- **PowerBook Duo 230 12/120** express modem, AC adaptor, battery, carrycase – £330 ☎ 01225 862506.
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- **Radius 24-bit graphics card** to fit NuBus Macs IIci etc. £250 ☎ 0121 382 8191 (evenings)
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- **Quadra 610 12/160** cpu, keyboard, mouse, – £450 with 14-inch monitor – £650. Hand-held omni scanner – £200 with manual etc. Fischer ☎ 0181 852 5071.
- **Apple Power CD** remote portable CD player – £80 ono or swap scanner colour printer or Zip drive Syquest 135 etc. Dave ☎ 01274 491011.
- **LC630 12/350** (easily doubled). CPU and keyboard. Many CD-ROMs included. Home use only. – £590. Also Fargo Fotofun with 25 prints – £250 ☎ 0121 3530550.
- **NEC x3 CD** with cables caddy CD-ROM toolkit. Software installed. Nine months old. Hardly used, mint condition. cost £259 – boxed, manuals – £100 ono. Staffs. Mary ☎ 01782 819825.
- **Sony 17inch multi-sync monitor** – unused, boxed, receipt. Moving abroad. £600. Balvant ☎ 0181 8811153. E-mail balvant@aol.com
- **6100 PSU** – £65. EZ135 x 2 – £90 each. CD300 – £50. Mach 10 Jet – £35. Level 2 Cache – £45. 1.44Mb floppy – £12. 6100 motherboard with fault in CPU case – £160. Offers? ☎ 01442 871235/ 863535
- **Mac LC630 12/250** external NEC CD-ROM drive, graphics software – £475 ono. Paul, Northampton ☎ 01604 402891
- **Performa 630CD TV 8/350,** 15-inch monitor, keyboard, mouse, manuals. Loads of software, CDs. Excellent condition – £795. Paul ☎ 01902 753237
- **Performa 630CD 20/1.7Gb,** 15-inch colour monitor, 14.4k internal modem bundled software including *Claris Works 4* – £750 ☎ 01344 869663 (evenings) 01252 395731 daytime
- **Connectix colour QuickCam** – £90. Bought Sept 96, boxed with software. Call Michael ☎ 0131 6536528 Edinburgh
- **Quadra 660AV 24/230CD**, accelerated to 35MHz, System 7.5, mouse, GeoPort modem, excellent condition, £500. *Myst* - £10, *Doom 2* – £15, *Ultimate Doom* – CD £15. ☎ 01865 378967
- **LCIII 8/80** and StyleWriter II printer with keyboard, mouse and colour monitor. Software includes System 7.1, *Claris Works* and *Claris Works 4* templates – £500. Crawley. Kevin ☎ 01293 888328 Eves/w.e.
- **Mac Quadra 650 16/270,** System 7.1/7.5, keyboard, ADB mouse, Apple 13-inch monitor. Excellent condition, home use. £750 ono. Contact Mike ☎ 0181 5192568
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- **Performa 5300 16/1.2Gb** MPEG TV-video 14.4 modem, quad CD, plus bundle and lots more including *Discworld* and Internet kit – £1,400 ono. Call Michael, evenings ☎ 01452 780482
- **Clearing Mac collection.** SE30, LCII, LCIII, LC475, monitors, printers, various bits, spares. Private sale. Any reasonable offers accepted. ☎ 01252 517430 evenings.
- **PowerBook 5300ce 32/1.1** 800 x 600 active screen, 28.8k Global Village PCMICA modem, UX Apple CD-ROM cables, case – £3,500 Nathaniel ☎ 01294 829400 or e-mail nctrost@pobox.com (Glasgow area)
- **PowerMac 7200/90 16/540** 512k Cache, 15-inch digital monitor, keyboard, quad-CD. Boxed with manuals – £1,600 ono, mint condition 10 months old. Adam ☎ 01352 71237.
- **Performa 600CD 12/230mb**, monitor, extended keyboard, internal 2xCD-ROM, excellent condition, boxed, manuals, *Claris Works 4.* Alick, Oakham ☎ 01572 756974
- **Performa 475 12/160,** running at 33MHz, 1Mb VRAM, 4 x CD-ROM, monitor, keyboard, microphone, mouse, loads of software – £850 ono, can include delivery. Leicester ☎ 0116 2238455
- **LC 4/40,** 12-inch RGB display, keyboard, mouse, microphone, manuals, disks, VRAM upgrade CD300e – £345 contact Karen ☎ 0973 389103 (Wimbledon). Extended keyboard – £40 8Mb RAM – £50.
- **Scanner** 36-bit, 4,800 dpi Epson GT9000 with full *Photoshop* and OCR software. Mint condition – £400 ono. KPT Vector FX – £40. Ring Ben ☎ 01476 578454 (Grantham)
- **Cache card for IIci** £30. 12-inch Apple RGB monitor – £50 Tel. Brian ☎ 01633 273359
- **Modem,** US Robotics 14.4bps, boxed as new – £60, Brian ☎ 01633 273359
- 8Mb of **30-pin SIMM** RAM taken from IIci (8 SIMMs) £40 ono. Tel. Brian ☎ 01633 273359 – may split.
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- **SE30 5/160,** new hard drive, carry case. Good condition – £325. Tel. ☎ 0171 6393052
- **Performa 630 CD,** 20Mb RAM. Full 68040 processor upgrade (inc FPU), 15-inch colour monitor, keyboard, mouse, manuals, System 7.5.3 – £1,199 ☎ 01372 452231
- **Performa 600CD 5/80,** 14-inch colour monitor, extended keyboard, CD-

ROM drive, mouse, all leads and cables – £595. Phone Pete ☎ 01202 603619 after 6pm.

■ **ThunderCache** 32MHz with FPU. Accelerates LC, LCII or Colour Classic by 220% – £130 or offer. VRAM 512K – £6, Bristol ☎ 0117 907 9362 after 6.30pm

Software for sale

■ ***Microsoft Office* software,** *Claris Works, VideoShop.* Mac Centris 660AV 12/500 CD, keys/monitor, video in/out, 48k audio includes *Pro-Audio* software. 7100/80 24/1Gb/CD + AudioMedia II, monitor & keyboard – £1,800 Phone Mick after 6pm. ☎ 0113 2469254

■ ***SoftWindows 3.0,*** CD unopened £130 ☎ 01782 512593

■ ***Myst* CD-ROM** – £20 Will swap for *King's Quest VII* CD, *FA-18 Hornet* or *A10 Attack.* Steve ☎ 01342 843135

■ ***Microsoft Office v4.2.1* CD-ROM,** Boxed – £140. *Avid VideoShop v3* – £90. *PowerPrint3* – £50 Use PC printers with Macs. All unregistered. Clive ☎ 01225 862506

■ Games ***Marathon 1 & 2,*** *Dark Forces, Myst, Rebel Assault, Zork, Indiana Jones, Journeyman Project, Peter Gabriel's Xplora 1, Adobe Illustrator.* All Boxed. Kevin ☎ 0181 520 9020

■ **CD-ROMs *Daedalus Encounter*** – £10, *Making Music* – £10, *Rednex* – £10, *The Way Things Work* – £20, *Colour It 3* – £20. All brand new and unused. Tel ☎ 01524 35262

■ **System 7 Boxed Set** with original disks and manuals, includes *HyperCard* – £20. Microsoft *Excel 4* – £25. *MacDraw II* – £10. ☎ 0181 769 2760

■ ***Access Intro Accounts* package** with original disks and manuals. Never used as package – £200. Phone ☎ 01592 651430

■ ***Extreme 3D.*** Unregistered. Excellent 3D software package. All manuals, tutorials and CDs. Modelling, animation with very fast rendering. Genuine reason for sale so please call me soon. Offers – £300-£350. Guy ☎ 0181 883 5913

■ **Unopened, sealed software.** *Microsoft Works, Project, Lotus 123, Claris, MacWrite II.* Any reasonable offer accepted. Tel ☎ 01252 517430 evenings

■ ***Claris Organizer,*** unregistered, unused, original disks, manuals etc – £50 incl. P&P. Iain ☎ 01599 544255

■ ***DOOM II,*** *Links Pro, Zoombinis, PowerMonger* and *Klik & Play* (game creator) – £15 each. All five for £50! Call ☎ 0114 264 6535 after 9pm

■ ***DiskWorks/MicroNet*** unopened, unregistered. Integrated drive management software for sale at half price – £80 ovno. Please leave your number on answerphone ☎ 01284 725609

■ **System 7.5,** boxed with manual plus *RAMDoubler,* boxed £60 ono. ☎ 01304 362451

■ ***Home@Office*** clip-art package. Over 10,000 images, 5,000 fonts on six CD-ROMs – £30. Call after 7.30 pm ☎ 01324 717328. Ask for Amer. Unwanted gift

■ ***Grolier,*** *Redshift* and *HyperCard* for sale – £100. Will sell separately. Contact Peter after 5.30pm. Lincolnshire ☎ 01652 660520

■ ***QuickFigure Pro v2.1,*** Fast Newton spreadsheet – £20 ono. *RAMDoubler v1.6* – £15. *Rebel Assault v1* CD – £10. Tony, Bristol ☎ 0117 907 9362 after 6.30 pm.

■ ***Diskworks* –** unwanted prize, disks still sealed, complete in original pack – £55 (inc P&P). Frank ☎ 0181 852 7932

■ ***Wing Commander 3*** – £20, *Marathon* and *Populus* – £15 each. *Where in World is Carmen* and *Hellcats Mission* disk – £10 each. Will swap! Call Rob ☎ 01273 820571

Wanted

■ ***Quicken* for Macintosh** with tax extensions. Please phone ☎ 01794 884454

■ **Performa 5300** or other Mac. Umax Power tower with 16Mb RAM, 1Gb-15Gb HD for good condition – £950. Umax Vista S6E scanner – £150. Super Vista S12 – £250. Beckenham, Kent ☎ 0181 658 9332

■ **Music software wanted.** *Cubase Score* or similar with scoring facility. Please phone Mark on ☎ 01302 722289 or 01302 881117. E-mail: Mark.newwave.UKonline.co.uk

Swap Shop

■ ***Harpoon II,*** *International Tennis, PGA Golf II, Sim Tower, Railroad Tycoon* – £60 ono or will swap for any complete version of a word processor, spreadsheet and/or DTP programs. Rob: ☎ 01932 228431

■ **7200/90MHz 16/1Gb** and Syquest 230Mb external drive. All still under warranty, excellent condition. Swap for 7500 or 8500 pager. Mike ☎ 01246 269949

■ ***Hexen, Dark Forces,*** *The Dig, Air Combat, Syndicate* and more. I want to swap with someone from Belgium, only recent software, not for PowerMacs. ☎ 03 219 8071

Books and magazines

■ **MACFORMAT CD** November 94 to October 96 – £110; 50+ MacUsers (November 94 to December 96) – £20 + postage. ☎ 0141 563 8104 (eves)

■ ***Photoshop 2.5 WOW book*****/disc** – £20. *Macintosh Bible* fifth edition – £15, *The Little Mac Book,* System 7.1 – £10. All plus postage. Telephone Mike ☎ 01347 810685 (York)

Help wanted

■ **Learning Japanese on a Mac?** Let's compare notes and software. Call Harry Dowling ☎ 0181 3904548 or e-mail harrydowling@easynet.co.uk

■ **Sci-fi and Horror** art student wants contacts interested in the Mac. Contact Philip. E-mail topping-pk@ulst.ac.uk or ☎ 01762 331631. E-mail preferred.

Thematic Groups continued

Hurley on 01273 834588

■ **Newton MessagePad West Yorks User Group**: David on 0113 278 0691

■ **PageMaker UG**: contact David Foster on 01509 415101

■ **QUAD Club (*QuarkXPress*)**: contact Philip Caplan on 0181 523 4233

■ **School Mac**: Gloucestershire. Contact Bill Henley on 01453 825422

■ **School Mac UG**: Cambridge. Contact Derek Smith on 01945 584146

■ **Special Needs UG (SNUG)**: contact Geoff Hughes on 01744 24608

■ **The British IIGS UG**: contact Peter Stark on 01223 838231

■ **Young Mac**: call 01795 535472

Others

Advertise your user group here. It need not be registered, but must be a non-commercial user group – just send us your full details and we'll do the rest.

■ **AppleEye BBS** (A FirstClass BBS) Modem numbers: 01234 822180 or 01234 826025. Address: PO Box 162, Oakley, Bedfordshire, MK43 7PA.

■ **Artists archive and news service:** contact The Research Station on 0181 778 6547 (24 hours) 38.4bps plus Web site at **http://www.metamute.co.uk/**

■ **Avid Mac user**, 14 year-old, would like to start user group with other teenagers in Hampshire and Surrey. Contact Kyle Alexander Productions "KAP". Call 01252 24207

■ **MacLin, E-lans MUG**: for info call +46 (0) 141 220330 or e-mail: omar@motala.mail.telia.com

■ **MacHelp**: non-profit helpbank for all Mac problems. Write to : MacHelp – Hermelynster 10, B2610, Wilryk, Belgium.

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CD-ROM: *Media Paint, Actua Soccer, Marathon Infinity* and *ClickWorks* demos. Full *Internet Explorer 3.0.*
Disk: *Pacman; DiskList; Malph.*
Inside: Best products of 1996; The Mac in '97; PC-compatibility solutions; *Fractal Detailer;* Software RAID.

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Free MacGamer supplement!
CD-ROM: 120Mb of video: clips, demos and utilities; *WarCraft II, Worms, Future Splash* demos.
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CD-ROMs: *Infopedia; IndyCar Racing 2, Planet Earth, Women's Rights,* 3D graphics for the Web, utility demos.
Disk: *InformInit; MacWorm; FreeRam.*
Inside: Over 75 ways to get more from your Mac; CD drives; *CorelDraw.*

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Issue 43 – November 1996

CD-ROM: *Marathon Infinity, Abuse, Director, Authorware, Muppets, Origins of Mankind* demos; artificial life suite.
Disk: *Snood* game, *MacTypingTutor.*
Inside: Artificial life; word processing vs DTP; storage media group test; *RAM Doubler 2, Overdrive* reviewed.

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CD-ROM **MFCD43**
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Issue 42 – October 1996

CD-ROM: *Bryce 2; Descent 2; QuickTime 2.5;* science demos.
Disk: *Bricks* building sim; *Super Carz;.StartUpScreenManager.*
Inside: Definitive Mac and clone round-up; e-mail packages; *Infini-D 3.5; IndyCar Racing 2;* science CDs.

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Issue 41 – September 1996

CD-ROM: *Photoshop 3.0.5, Director 5.0, Hexen* demos; *Goo* movies.
Disk: *DeBabelizer Lite* complete; eight utilities.
Inside: Huge image manipulation feature; tests of scanners and digital cameras; *Let's KISS* spreadsheet.

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Issue 40 – August 1996

CD-ROM: complete *Myst* screen-saver; *UniQorn; Fontographer; BeyondPress 2; HexWeb.*
Disk: 16 System enhancers; *FlipSide.*
Inside: Text manipulation; 15- and 17-inch monitors tested; speakers tested; multimedia music titles.

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CD-ROM **MFCD40**
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Issue 39 – July 1996

CD-ROMs: Sorry, no longer available.
Disk: *Skittles; Digital Address Book; Shards 1.3; Geogenius World; Rainbow Windows; Calendar Menu 3.01.*
Inside: Discover the Internet; *Extreme 3D, Ray Dream Studio, PhotoDeluxe; Spycraft, Flight Unlimited* reviewed; Fax-modems round-up and reviews.

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Disk: Print utilities; freeware fonts; *Flippers; Biorhythms; Munchies.*
Inside: Perfect printing made easy; colour printers reviewed; *Live Picture 2.5; xRes 2.0; Bryce 2.*

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Issue 37 – May 1996

Free MacGamer supplement!
CD-ROM: Guide to upgrading your Mac; *Full Throttle, InfoGenie* demos.
Disk: Guide to Mac upgrades; *Quark* game; *SimpleBackup; Fly Swatter.*
Inside: Giant fold-out Mac family tree; Mac upgrades; *Illustrator 6.*

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MACFORMAT

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ABC **MACFORMAT'S circulation is independently audited by the Audit Bureau of Circulations**
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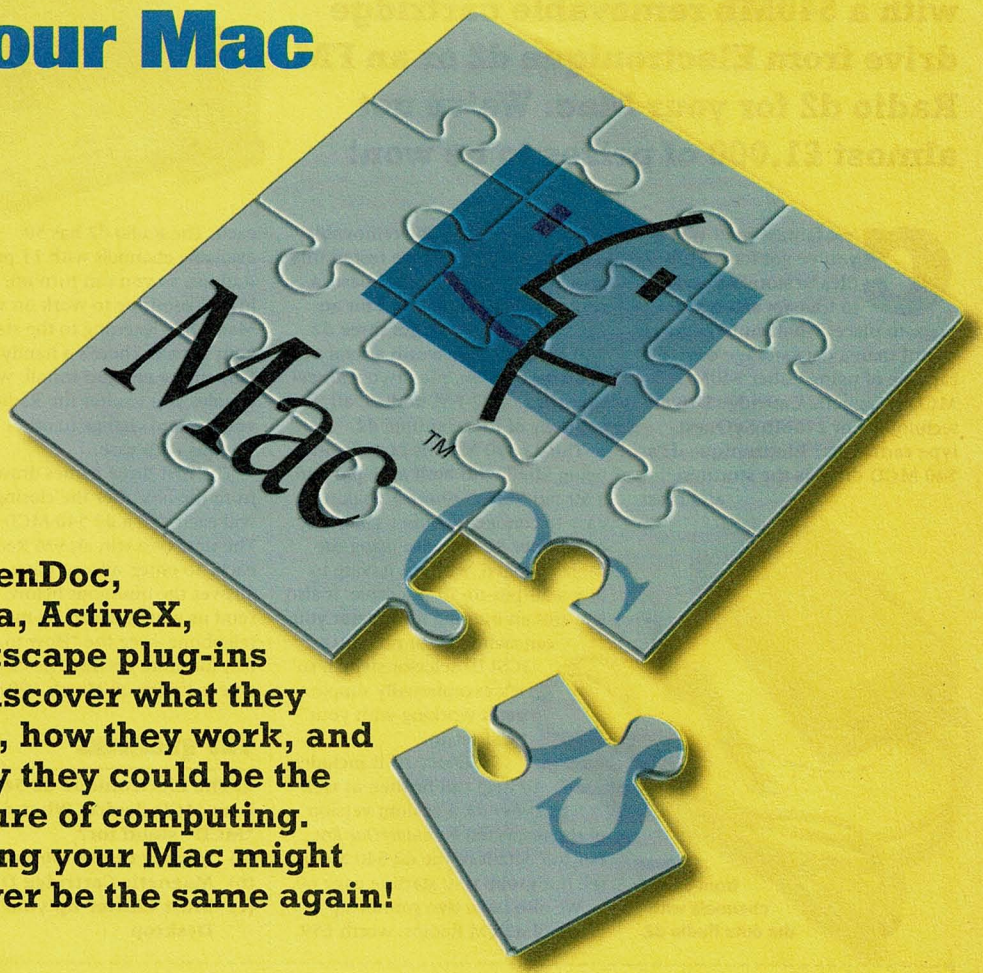
Big numbers – the Tiny Zone!

Hello and welcome again to Tiny Zone, the section of MACFORMAT that always brings things down to earth. After all the exciting news from Macworld Expo in San Francisco, it's a shame to hear that once again Apple has managed to snatch failure from the very jaws of victory and make another financial loss. Despite a continuing boom in the UK and Europe, Apple worldwide lost $120 million in the last quarter of 1996. Now, Tiny Zone always has trouble grasping big figures like that. So we did a small calculation and worked out that a loss of $120 million in a quarter is a loss of $15.43 *every second* of the day and night for three months. In the time it takes you to say $15.43, you've lost another $15.43. You can just imagine Gil Amelio lying awake in bed at night, counting... What must rub salt into the wound is that in the same period, MicroSoft made $95 *profit* every second – $741 million in the quarter. Where else could you make profits like that? Okay, privatised utilities, I suppose. But now we *are* losing touch with reality...

Next Issue

Component software – how it will transform your Mac



OpenDoc, Java, ActiveX, Netscape plug-ins – discover what they are, how they work, and why they could be the future of computing. Using your Mac might never be the same again!

Plus

- **A guide to upgrading your Mac and adding more RAM**
- **Canvas 5.5 – painting, illustration and DTP, all in one?**
- **ClickWorks – a better choice for multimedia authoring?**
- **Nisus Writer 5 – not just a word processor, but now an OpenDoc container too... How does it shape up?**
- **Fractal Design Expression, practical how-to's, and much more!**

MACFORMAT 49 goes on sale on Thursday 13 March. Reserve your copy with your newsagent now, or see page 115 for our special subscription offers

Win a d2 540 MCD removable drive

To infinity and beyond! Anything is possible with a 540Mb removable cartridge drive from Electronique d2 or an FM Radio d2 for your Mac. We've got almost £1,000 of prizes to be won!

Feeling spaced out? Then you need one of these superb 540 MCD drives from Electronique d2!

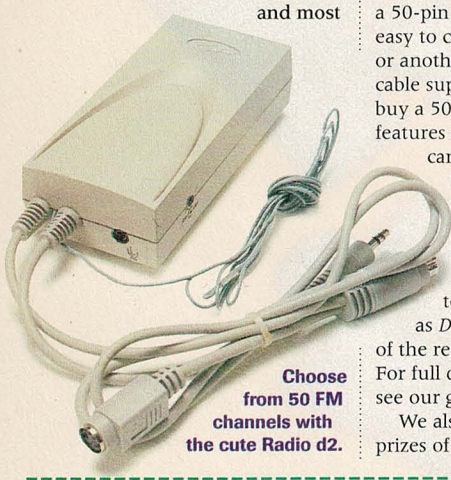
C'est fantastique! When you've got lots of big files to store, or perhaps to transfer safely from place to place, what could be more useful than a data storage device capable of using either 540Mb MCD (Magnetic Cartridge Drive) technology or 270Mb SyQuest-type cartridges? Electronique d2's 540 MCD drive is the sturdiest and most solidly-built of all the removable data storage devices we tested this issue (see page 60), and boasts a respectable turn of speed for an MCD device. We've got three d2 540 MCD drives, worth a total of £864, to be won, plus two runner-up prizes of d2 FM Radios, all courtesy of Electronique d2.

The d2 540 MCD is unusual in being fitted with both a 25-pin and a 50-pin SCSI connector, making it easy to connect to either your Mac or another SCSI device using the cable supplied, without having to buy a 50-pin-to-50-pin cable. It also features an internal terminator you can switch on or off, plus SCSI ID selector switch, so it's exceptionally simple to get it working with your SCSI set-up.

SCSIProbe 3.5 is included to help still further, as well as *Driver d2*, a custom version of the respected *FormatterOne Pro*. For full details of the d2 540 MCD, see our group test, starting page 60.

We also have two runner-up prizes of d2 FM Radios, worth £59 each. The Radio d2 has 50 available channels with 11 preset stations, so you can turn on, tune in and continue to work on your Mac while listening to the station of your choice. There's a handy *Control Strip* utility you can install, which enables you to alter the Radio d2's volume and change to other stations with ease.

The first three names drawn from the box after the closing date will each win a d2 540 MCD drive. The next two win an FM Radio d2 each. To enter, all you have to do is answer the questions below, and send us your answers by mail or telephone – see the "How to enter" box for more details. The closing date is Friday 28 March 1997.



Choose from 50 FM channels with the cute Radio d2.

The questions

1. The Electronique d2 540 MCD is an MCD device. What does "MCD" stand for?
(a) Mighty Clever Device
(b) Magnetic Cartridge Drive
(c) Must Clutter-up your Desktop

2. How *wide* is the Electronique d2 540 MCD drive?
(a) 50mm
(b) 205mm
(c) 540mm

3. Which handy utility can you use to pump up the volume on the FM Radio d2?
(a) *The Stripper*
(b) *The Control Strip*
(c) *Mission Control*

The rules

1. You must send us your entry by midnight Friday 28 March 1997.
2. Employees of Electronique d2, Future Publishing and associated companies or their agents, and their families, are not eligible to enter.
3. Multiple entries are not allowed.
4. The editor's decision is final, no correspondence will be entered into and there are no cash alternatives. No purchase is necessary. **MF**

Send this coupon (or a photocopy) to: Electronique d2 Competition, MACFORMAT, PO Box 700, Wellingborough NN8 1CL

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To help us improve the magazine, please answer the questions below. You will be entered into the competition even if you choose not to answer them.

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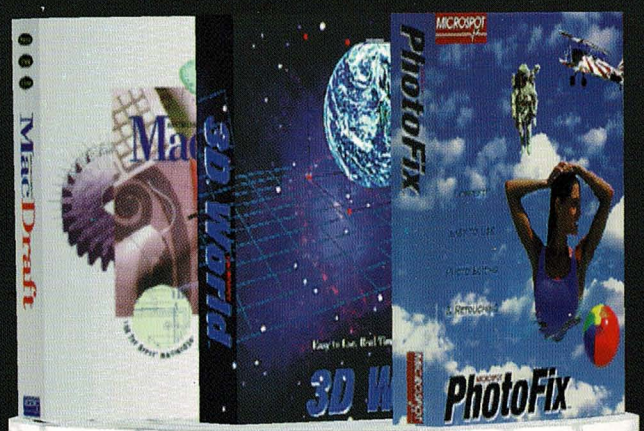

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